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DISEASES OF THE SKIN

P. WALSH

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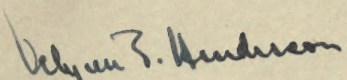

DISEASES OF THE SKIN

BY THE SAME AUTHOR

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Third Edition

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EXCRETORY IRRITATION

GOLDEN RULES OF SKIN PRACTICE
Fourth Edition

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DISEASES OF THE SKIN

A HANDBOOK FOR STUDENTS AND PRACTITIONERS

UNIVERSITY OF TORONTO LIBRARY

BY

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1913

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PREFACE

Of late years the study of diseases of the skin has made great strides, but much work remains to be done. The growth of knowledge has been duly registered in various excellent textbooks of dermatology, but there appeared to the author to be room for a simple and concise introductory handbook on the subject. This book has accordingly been written in the attempt to fill the gap to some exent. Its manuscript has been in the printer's hands for twelve months, and during that period, so rapid has been the progress of this study, that several sections have had to be rewritten. The author has been greatly indebted to Americans—more especially to the valuable manual published by the late Dr. Nevins Hyde, and the works of Drs. Pusey and Bulkely. Indeed, it almost looks as if in the future much of the original work of dermatology were destined to come from America. In support of that view one need only refer to the epoch-making discovery of Schenk, whereby sporotrichosis was traced to a mould-fungus, which was in turn shown to be capable of infecting internal organs. The discovery of Clegg, again, of the special method of culture of the leprosy bacillus on artificial media has rendered possible the detailed study of an obscure disease. Another important observation was that of Gilchrist, who was the first to describe blastomycetic dermatitis. Noguchi of New York has apparently discovered the female gamete of the syphilitic protozoön simultaneously with McDonagh in London. So far as our own countrymen are concerned, although a great amount of valuable work has been accomplished, it has not been marked with any great amount

of originality, with the exception of McDonagh's discovery and that of Sambon, who traced pellagra, for generations a perplexing problem to dermatologists, to the action of a protozoön conveyed by the bite of a midge that inhabits swiftly-running streams. The identification of this midge in the United Kingdom and the finding of pellagra cases in lunatic asylums, if established, amply vindicates the scientific and economic necessity of dermatology as a special study.

This book being intended for students and practitioners, deals with the simpler aspects of dermatology. At the same time it should be said that some special allusion has been made to the relation of skin diseases to the human body generally. In 1890 the author suggested that not a few skin eruptions were symptomatic of irritation caused by the excretion of various irritants, which might be of a chemical, biological, or mixed autogenous origin. This theory of excretory irritation has been to some extent approved by American writers. In England one author, in a recently-published work on dermatology, clearly adopts the views of the present writer. Speaking of eczema, he says: "The frequent association of dyspepsia or constipation with the appearance of eczema is probably to be explained by the absorption of products of decomposition from the alimentary canal and their excretion by the skin. Gout is often put forward as a cause of eczema, and I have little doubt that this is true; perhaps the skin affection is caused by the concomitant disturbance of digestion so commonly seen in gout, or perhaps it may be due to the irritation produced by the excretion by the skin of sodium urate and other toxins." In another place the same writer states his opinion of the etiology of eczema thus: "Eczema arises from the action of an irritant on a skin which is generally predisposed to the eruption. The irritant may act from inside the body, in which case it is generally of the nature of a toxin, and it exerts its effects as it circulates in the vessels of the skin or as it is being excreted." As this is the first serious adoption of the writer's views in an English work upon dermatology, it is somewhat a matter of regret to him that the conditions under which

his book has been produced have not permitted the insertion of names and references.

One other point referred to somewhat frequently in this book is the relation of various skin diseases to the vascular system. It has been the custom of some writers to refer the origin of a large number of cutaneous affections to the nervous system, in many cases without the support of a single clinical or pathological fact. On the other hand, the vascular system has been strangely neglected by dermatologists. From various observations the author concludes that abnormal vascular conditions, central or peripheral, lie at the bottom of a great many pathological skin affections, more especially those of a chronic or recurrent nature. The skin is exposed to incessant traumatism, from which it recovers as a rule, provided the cutaneous circulation be healthy. When the balance of the cutaneous circulation is disturbed, however, the power of physiological reaction is impaired or lost, and we have a permanent or chronic state of traumatic reaction. In old age, again, we have a marked shrinkage of the cutaneous capillary circulation. When a similar change takes place prematurely, the skin suffers correspondingly in nutrition and power of resistance to traumatism of various kinds—biological, physical, chemical, and mechanical. Premature baldness, from this point of view, spells premature senility, with a shrunken and atrophic scalp.

D. W.

HARLEY STREET,
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May, 1913.

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DISEASES OF THE SKIN

INTRODUCTORY

The skin, needless to remark, is an important organ of the human body. It serves as an elastic waterproof covering to the underlying tissues ; it constitutes a first line of defence against bacterial invasion ; it possesses a terminal nervous system capable of regulating the surface blood-supply and excretions, and of picking up accurately tactile and sensory impressions, including any form or degree of traumatism, chemical, thermal, electrical, or mechanical ; it plays a leading part in the regulation of body temperature by means of its vasomotor system and its excretion of sweat ; its appendages, the hair and nails, have lost their early significance, and survive chiefly as factors in sexual attractiveness ; lastly, the skin is an excretory organ of vital importance to the human organism. In discharging these varied duties the skin is exposed to many vicissitudes. Indeed, the study of diseases of the skin may be regarded mainly as that of its reaction to an infinite variety of traumatic influences, external or internal. Long ago Sir Jonathan Hutchinson referred the majority of skin disorders either to traumatism or parasitic invasion. Using the term " traumatism " in its widest sense, we may extend its agency by a similar line of reasoning to many affections of internal organs. In dealing with the skin we have the obvious advantage, not only of seeing the objective signs of the malady but also of noting its course and the effects of treatment. In spite of a vast amount of conscien-

tious work in this particular field, however, we know no more about the ultimate facts of many common skin affections than about the origin of a multitude of internal maladies. Of late years bacteriology has furnished a clue to many morbid conditions, both externally and internally, and in some instances has at the same time afforded a more or less effectual remedy. Nevertheless, in the present stage of bacteriological science it is unsafe to trust implicitly to the findings of the laboratory. In some instances contradictory reports are given of one morbid specimen by different experts. In a word, bacteriology is not yet an exact science, and the student of skin diseases will do well to cultivate carefully his power of clinical observation, a faculty that can never be superseded by the detached investigations of a pathologist, who may, for various reasons, go wide of the particular case under consideration.

At the same time there is not the least intention to decry the value of the pathologist, whose services are in many cases essential to the formation of a correct diagnosis. In determining the nature of a doubtful growth, for instance, a microscopic section may at a glance reveal its tubercular, carcinomatous, or other origin. Again, without the aid of a Wassermann test, he would be a bold man who would assert that a given patient had been cured of syphilis. Nevertheless, there are many skin maladies in which the physician must trust to his own powers of clinical observation, and that seems likely to be so until the end of time. There is no royal road to a knowledge of dermatology. At first the student may be discomfited by the apparent hopelessness of the maze by which he is confronted, but with gathering experience the pathway will become plainer, and he will be better able to estimate the true position of a skin manifestation with regard to the body generally.

Anatomy.

The anatomy of the skin must be grasped in order to understand its pathological changes. It is divided into a superficial cellular layer, or *epidermis*, and an underlying *corium*,

or *cutis vera*. In the embryo processes of epidermis pass down into the corium, and form the hair follicles, the sebaceous and sweat glands.

The **Epidermis** is made up of a series of well-defined epithelial layers. The basement or germinal layer consists of small nucleated columnar cells arranged regularly like a row of bricks (or a palisade) upon the papillæ. The cells of the epidermis are produced mainly in this layer, but mitotic cells are to be seen in adjacent prickle cells which form the next layer or Malpighian, composed of rounded or polygonal cells with well-marked nuclei. Their distinguishing feature is the so-called "prickles," which are now regarded as interlacing fibres of intracellular spongioplasm, bolting together the cells in such a way as to leave the whole rete Malpighii permeated by channels, through which lymph circulates freely. As they near the surface the prickle cells become smaller and elongated, until at length they merge into a thin, flattened granular layer. These latter cells stain deeply; they contain fat, and their granules consist of keratohyalin and eleidin, which are probably transitional stages of the transformation of the cellular protoplasm into keratin. The next layer is that of the *stratum lucidum* (to be seen best in the skin of the palms or soles). Its cells contain eleidin, a fat that resists ordinary stains and is not stained with osmic acid. Some observers regard the *stratum lucidum* as a part of the horny layer, or *stratum corneum*. In the latter layer the cells are blackened with osmic acid, showing the presence of fat, whereby the skin is rendered waterproof. Speaking generally, as the cells approach the free surface they grow flatter and drier, while the nucleus is pushed to one side of the cell, until it is often indistinguishable. The horny cells cohere by means of the interlacing fibres which have shared in the gradual shrinking and keratinization of the prickle cells. In the healthy skin the horny cells are constantly shed from the surface.

The hair follicle is formed by an involution of the epidermis, which during development is pushed down like the finger of a glove into the corium. It is met by a little upward-growing capillary loop, which constitutes the bulb or papilla,

and from this in turn the hair is formed by a modification of the epithelial cells. The various layers of the hair and the hair follicle have been carefully named.

The sebacecous glands are also formed from involutions of the epidermis. As a rule they open into the hair follicles, but in some situations—*e.g.*, the cheek—the hairs are absent or rudimentary (*lanugo*). The gland cells are well supplied with blood, and undergo a fatty metamorphosis, of which sebum is the outcome.

The coil gland is also formed by involution of the epidermis. It consists of a long tube, which in the deeper corium is coiled upon itself to form a gland, the duct of which runs in a corkscrew spiral to the outer surface of the skin. The secretion is watery, but also contains fat. The coil gland is met with abundantly on the surface of the body, and is closely packed on the palms and soles, parts from which sebaceous glands and hairs are absent.

The corium contains much connective tissue and elastic fibre, with a rich supply of nerves, bloodvessels, and lymphatics. Its upper or papillary layer is made up of a number of conical projections, or *papillæ*, thrust into corresponding recesses in the epidermis. Each papilla contains a bloodvessel or a nerve-ending. The blood-supply is distributed by means of two chief plexuses—a deep and a superficial; the superficial underlies the papillæ, and when dilated causes a blush or erythema. From the deep plexus are given off supplies to the glands and hair follicles. Nerves supply the Pacinian and Meissner's corpuscles found in the nervous papillæ. Fine fibrils penetrate the epidermis, and may be seen ending in individual cells. The vasomotor supply to the various elements of the skin appears to be specialized; for there may be blushing with a dry skin, or localized sweating with pallor, or a sebaceous hypersecretion without either redness or sweating. The veins may be dilated, as in the cyanosis of certain forms of heart disease; or the small surface venules may be permanently dilated, as in telangiectasis, or in the rosacea of alcoholism, where the veins show conspicuously beneath the epidermis. Fine muscles are attached to the

bulbar ends of the hair follicles, and are inserted near the undersurface of the epidermis. They elevate the hairs, and give rise to the bristled appearance known as "goose skin."

Elementary Lesions of the Skin.

These may be termed the ABC of dermatology. They are divided into primary and secondary lesions; *e.g.*, the primary vesicles of herpes zoster are followed by secondary pustules and scars.

Primary Lesions.—1. *Macules* are discolorations of level skin of any size. They may be inflammatory (*hyperæmia*) or non-inflammatory (*nævus*); due to excess of pigmentation (*freckle*) or deficiency (*leucodermia*); or hæmorrhagic (linear *vibices*, punctate *petechiæ*, or diffuse *ecchymosis*).

2. *Papules*, or pimples, are solid elevations of the skin not larger than a pea. They may be inflammatory or non-inflammatory, and in shape acuminate, round, flat, or umbilicated.

3. *Vesicles* are elevations of the skin up to the size of a pea, containing clear or slightly turbid fluid.

4. *Blebs* or *bullæ* are vesicles larger than a pea.

5. *Pustules* are elevations of the skin containing pus, usually developed from vesicles or papules.

6. *Wheals* are raised, solid elevations of the skin of a fleeting nature. They are rounded, with a pale centre and reddened edge.

7. *Nodules* are papules larger than a pea. (This name is better than "tubercle," which is apt to be confused with tuberculosis.)

8. *Tumours* are nodules of exaggerated size.

Secondary Lesions.—9. *Crusts* or *scabs* are dried products of diseased skin, such as blood, serum, pus, and sebum.

10. *Scales* or *squames* are plates of laminated epithelium shed from the surface by the process of desquamation.

11. *Pigmentation* is common after many primary inflammations.

12. *Excoriations* or *abrasions* are due to the removal of

more or less of the horny layer of the skin; they are attended by serous discharge and the formation of brownish scales.

13. *Ulcers* are caused by an inflammatory destruction of skin involving the corium; they end in scars.

14. *Fissures, rhagades,* or "*chaps,*" are cracks extending through the epidermis.

15. *Scars* or *cicatrices* follow destruction of more or less of the substance of the corium; the papillæ may escape and the scar is then purely subcutaneous; or the whole of the papillary layer is destroyed, and the scar is then described as "deep," but if the papillæ are only partially involved, the scar is correspondingly "superficial." They are formed of cicatricial tissue replacing the normal skin, and are usually depressed (atrophic), devoid of glands, and hairless. At times they may be elevated (hypertrophic) or pigmented.

NOTE.—The above lesions often merge one into the other; thus the smallpox papule becomes a vesicle, and then a pustule, and finally ends in a scar. In herpes zoster the vesicles are primary, and the pustules and scarring secondary.

Etiology.

As this book is intended to serve merely as an introduction to the study of dermatology, causation will not be dealt with at length here, but will be touched upon under the description of the various maladies. It is obvious that in a certain proportion of cases the skin defect is congenital—*e.g.*, ichthyosis. In a large class the cause is some external traumatism, such as the sun's rays, heat, cold, electrical action, or an irritant of animal, vegetable, or mineral origin. Instances of the latter may be found in scabies, *Primula obconica,* and iodine. Bacteriology has added a large number of specific irritant micro-organisms that affect the skin, such as those of leprosy, sporotrichosis, and syphilis.

On the other hand, various internal irritants are brought to the skin by the circulation. The explanation of symptomatic rashes caused in that way advanced by me in 1890*

* "Excretory Irritation." D. Walsh, M.D. (Baillière, Tindall and Cox, London, 1897). Also *Medical Press and Circular,* October 2, 1890

was that of an " excretory irritation " set up in the skin by the excretion, or the attempted excretion, of an irritant, which might be chemical (*e.g.*, arsenic or iodine), of some morbid autogenetic product (*e.g.*, in gout or chronic nephritis), or infective—*i.e.*, due to the actual excretion of pathogenic organisms or their products. In these symptomatic rashes certain elements of the skin may be picked out, as in the punctiform erythema of enema rash, or they may be of a multiform, diffusely congestive or exudative nature. In such cases I believe the skin to be affected vicariously with other channels of elimination from the body. Those drugs, for instance, which cause skin rashes are found experimentally to set up inflammatory nephritis, diarrhœa, bronchitis, and so on. In scarlatina, presumably due to a specific infection, all channels of excretory exit from the body are damaged. It has not been proved that the desquamating skin contains the extremely active virus of scarlatina, nor has infection, on the other hand, been traced conclusively to any other eliminatory system. Arguing from my conclusions in 1890, I maintained that it was probably of just as much importance to disinfect the urine as the other excreta of fever patients. That course, I understand, has been adopted for some years in the case of enteric fever and scarlatina cases in the hospitals of the Metropolitan Asylums Board.

Although the theory of excretory irritation was advanced in 1890, it has, apparently, not attracted wide attention amongst dermatologists. At the same time, during the intervening period, the importance of the excretory function of the skin has been far more widely recognized. Many writers allude to the causative influence of an irritant in the blood, but do not commit themselves as to the way in which it acts upon the skin. Some adopt my phrase bodily, and say that such a rash is due to " an irritant circulating in the blood." The reason for their hesitation is not clear. It can hardly be doubted that the selfsame cutaneous irritant acting alternatively on the kidney, and setting up a nephritis, does so by direct action on the latter organ. In practice, again, the interchangeability of the excretory function is taken advantage

of by all of us, as, for instance, when we attempt to relieve the skin by purging and diuretics, or to relieve internal organs by the use of hot baths and sudorific drugs.

In many of the symptomatic rashes, however, whether of external or internal origin, some special predisposing and determining factors must be at work. It would be difficult otherwise to explain the peculiar susceptibility of certain individuals compared with the immunity of others exposed to similar exciting conditions. In the case of the rash which affects some of the daffodil-pickers in the Scilly Islands,* I found that an essential predisposing condition appeared to be some injury to the epidermis. It was not until two years later that, my attention having been specially directed to circulatory inadequacy as a predisposing aid to traumatism, I made some inquiries at the daffodil farms in Jersey. The time of my visit was in August, several months after the flower-picking season, but I was fortunate enough to find four persons (a manager and three women) highly susceptible to the poison—in fact, three of them still had visible dermatitis on their hands. In all these cases I found valvular disease of the heart, which appeared to me to afford a key to their special vulnerability. Another interesting observation was that of two florists who both became ill when the daffodils were in their shop, and one of them actually vomited. One was florid, and both had the history and other evidences of cardiac trouble. It may be added that I have found valvular or other central cardiac defect present in a large number of chronic and recurrent affections of the skin. In such cases I regard the dermatitis as resulting from the failure of the skin to establish that healthy reaction against the primary and secondary processes of moderate traumatism shown by a normal skin. A graze of the shins, for instance, in a person suffering from valvular disease, instead of healing in a week or ten days, may drift into a chronic spreading dermatitis of indefinite duration. The impaired resistance to traumatism I regard, in such cases, as a delicate symptom of various forms of heart disease, and an indication of deep

* *British Medical Journal*, September 24, 1910.

significance as regards the line of treatment, which should be aimed at the circulatory cause rather than the cutaneous symptom. It is obvious that if the local supply to the skin be deficient in amount the normal defensive processes whereby the blood resists invasion must be correspondingly impaired. An everyday illustration of the effects of impeded circulation may be seen in the eczema commonly associated with varicose veins.

Another result of defective skin circulation is that pathogenic bacteria and irritant substances (*e.g.*, toxins) carried to the surface may become lodged there, and, owing to the defective blood-stream, are not destroyed or flushed away. I have met with lupus in patients who suffered from heart disease, and it seemed to me possible—or probable—that the defective blood-stream might be responsible for the local development of the tuberculosis bacillus. A similar line of reasoning applies to the local deposition of an irritant like iodine, which appears specially to affect hair follicles in which the local circulation is limited. In other words, an "idiosyncrasy" against iodine simply means a defective circulation that favours the local deposition of a powerful chemical irritant, and is unable to repair the effects of the traumatism thus brought about.

Classification.

In the present state of our knowledge of skin diseases it is impossible to draw up any satisfactory scheme of classification. Some authorities group the majority of skin maladies under the neuroses. Others incline to the elementary lesion as a securer basis. Happily, as our scientific knowledge becomes more extended and accurate, we are able to find a definite *causa causans* for a greater number of cutaneous maladies. One main source of advance has been due to the discovery of specific pathogenic organisms. In some instances the interesting observation has been made that in certain tropical diseases, where no microbe has been discovered, the filtrate of the affected serum forced through a Pasteur porcelain filter has nevertheless been able to convey the original

infection, but the same virus could be readily destroyed by heat. The infection, moreover, has been arrested by the finer pores of a Japanese porcelain filter. The suggestion of an ultra-microscopical virus is of much interest in view of our failure to identify the cause of smallpox, measles, and many other diseases. It may be that, with improvement in our means of physical investigation, we shall discover the cause of various skin troubles of obscure origin. Even in the case of syphilis, the identification of the *Spirochæte pallida*, by no means one of the smallest of known micro-organisms, has been made only within the last few years.

A mixed classification, frankly based on grounds of mere convenience, has been adopted in this book.

1. Anomalies of circulation, in which are included erythema and urticaria. Purpura is excluded from this class by Norman Walker on the ground that it is a disease of the blood rather than of the skin ; but a strict application of that principle would exclude a number of rashes due primarily to an abnormal condition of the blood.

The large class of inflammations includes diseases of widely different kinds. Broadly speaking, its members exhibit the classical symptoms of redness, heat, swelling, and pain, although one or more of these phenomena may be in abeyance. Their *causa causans* may be obvious ; it may be of external or internal origin ; it may be of almost endless diversity. In all of them the inflammatory process may become complicated with pyogenic and other bacteria, and may involve any or all of the tissues of the epidermis and cutis vera, as well as of the subcutaneous tissues. Where the papillary layer is involved scarring follows. The redness may be punctate, as when the sweat or sebaceous glands or the hair follicles are inflamed, or show a diffuse redness from congestion of the superficial plexus of the papillary body. Exudation may take place into the intercellular spaces of the rete Malpighii or within the cutis vera.

Other groups which will be considered are anomalies of secretion, of sensation, of pigmentation, of excretion, new growths, coarse parasitic infections, and diseases of the appendages.

Diagnosis.

In all cases the family and personal history of the patient should be inquired into. A careful examination should be made of the eruption, its date of onset, subjective symptoms, objective appearances, distribution, and a note made of treatment that has been adopted.

A history of gout, rheumatism, phthisis, or other family or personal constitutional maladies, may yield useful information. The general colour of the skin should be noted, as well as the state of the nails, hair, and teeth. The investigation should include the main systems of the body.

Alimentary System.—The teeth and gums are closely connected with various skin conditions: both caries and pyorrhœa lead to toxæmia and anæmia by local absorption and by their indirect action on the stomach. It is certain that gastric dyspepsia is connected with certain rashes, as rosacea. Even closer is the connection with constipation, which is a probable cause of various forms of erythema, notably rosacea of the face with chronic congestive redness and often slight enlargement of the terminal finger-joints. Constipation is frequently associated with premature shedding of hair. Its toxins seem to be connected at times with degeneration of the myocardium and by thus weakening the cutaneous circulation may contribute indirectly to various eruptions.

Circulatory System.—The importance of the circulation in relation to skin affections has, apparently, not hitherto been duly appreciated by dermatologists. My own investigations show that a large number of skin troubles of most diverse nature, such as chronic eczema, lichen ruber planus (et traumaticus), rosacea, many seborrhœic and dry scaly eruptions, premature baldness, and various forms of dermatitis, are commonly associated with valvular or myocardial disease of the heart. In some cases an acute rash may occur in a patient suffering from valvular disease upon exposure to a hot sun. Inquiry will often show that he has had a recent attack of influenza or has undergone some experience likely to weaken the myocardium. His dermatitis I regard as a delicate

symptom of failure of compensation, which may be unregistered or only faintly discernible in the shortness of breath, palpitation, dyspepsia, œdema, and other classical signs and symptoms of cardiac trouble. In some cases of chronic psoriasiform rash I have found the heart's action weakened and irregular owing to excessive smoking, and I have noted this connection often enough to leave little doubt in my own mind that functional weakness of the myocardium due to excessive use of the nerve poisons—tea, tobacco, and alcohol—may profoundly affect the onset, the maintenance, and the recurrence of not a few cutaneous maladies. At any rate, the dermatologist will do well to investigate the circulatory system carefully in all cases where he has to deal with a chronic or recurrent dermatosis.

The why and wherefore of this association between circulation and skin demands a great deal of further study before any sound conclusions can be formed. The affections of the heart are complex, and their relations to the disturbed balance of surface circulation, which we may assume to be a more or less necessary consequence, are likely to be no less complicated. It seems clear, however, that any serious diminution in the volume, the pressure, the rate, the variation (*vis a tergo* or *vis a fronte*) of the circulation is likely to be associated with a corresponding change in the nutritive and defensive functions of the blood with regard to the skin. A similar remark applies to qualitative as well as to quantitative changes in the circulating fluid.

Further reference will be made to this point in describing various skin lesions in which it is concerned.

Urogenital System.—The state of the kidneys should be ascertained. Disease of the skin is often closely connected with Bright's disease, which may be primarily or secondarily concerned in cardiac changes.

Nervous System.—There are certain diseases, such as shingles, in which the nervous system is clearly implicated. There is another group in which angioneurotic disturbances are conspicuous, as, for instance, urticaria. There are cases of pruritus without obvious cause, of alopecia areata, of

glossy skin, of some forms of hydroa and pemphigus, which may reasonably be referred to disturbances of the nervous system. It seems, however, a little wide of the mark to classify under neuroses of the skin a long list of maladies including such differing conditions as those of urticaria, urticaria pigmentosa, all forms of erythema (inclusive of erythema intertrigo, erythema scarlatiniforme, bedsore), frost-bite, sun dermatitis, purpura rheumatica, lupus erythematosus, pellagra, lichen pilaris, diabetic gangrene, and many other conditions, some of which are plainly open to alternative and simpler pathological explanations. The neurotic theory is advanced by authorities of such eminence that it is impossible to doubt there must be some ground for their belief, and that may perhaps be found in the fact that the nervous system is intimately connected with every tissue of the skin down to its ultimate epidermal cells. It is impossible to conceive any pathological process affecting the skin in which nerves are not implicated, and to that extent it would be warrantable to describe any cutaneous affection as a neurosis. It may be argued that the tendency of my own observations is to substitute the circulatory for the nervous system as the chief predisposing and contributory factor in a wide class of dermatoses. In answer to that criticism it might be said that the conclusions as to the implication of the circulation are based upon demonstrable pathological cardiac conditions, whereas, on the other hand, in spite of the length of time during which the theory of nervous origin has been advanced by men of authority, the amount of precise pathological proof of associated changes in the nervous system is of the scantiest.

I have heard a sound dermatologist state that he had often seen rashes follow a wound of the skin, and express his opinion that the rash was due to absorption of some irritant which acted on the nervous system. Why a symptomatic rash of that kind should need the intervention of the nerves is not clear. The irritant is in the blood, and demands excretion from the body. Whatever channel of exit it may select will be more or less inflamed according to its potency. In other

words, assuming that a given irritant affects the nervous system, it still has to be accounted for by the eliminatory organs—hence the symptomatic nephritis, diarrhœa, bronchitis, dermatitis, and so on.

The sex, age, and occupation, of the patient may give a clue to his ailment.

Some useful hints may be found in the following rules :*

1. *Always* examine your patient in a good light. Daylight is best, as colour is modified by artificial light, and faint rashes may be misinterpreted or overlooked.

2. *See every part* of the affected surface. Some rashes are multiform, and almost all may be altered locally by scratching, treatment, washing, and so on.

3. Ascertain the *duration of eruption*, how and where it began, whether it irritates, whether any friend of the patient has a similar trouble, and what treatment has been adopted.

4. *Never* neglect family and personal history, which may throw a flood of light upon an otherwise obscure case. At the same time, *never* be tempted to give an opinion from the mere history of a case, or you may go sadly astray.

5. Always investigate the state of the *general health*, even where the cause is purely local—*e.g.*, *scabies ;* results are often greatly modified by the constitution of the patient.

6. *Washing the skin* may show the nature of an eruption by revealing scars, burrows, pigmentations, and other objective evidence.

7. *Remember* that rashes may arise from food, as mussels, tainted meat, and strawberries, or from drugs, as antipyrin, the iodides, and antitoxin.

8. *The thermometer* will often settle a diagnosis. Its use would prevent the confusion of a copaiba rash with measles, or of a vesicular syphilide with smallpox.

While a skin diagnosis is sometimes extremely easy, at others it is extremely difficult. In many cases it is only by a careful consideration of all the points of the case by a der-

* "Golden Rules of Skin Practice," D. Walsh, M.D. (Wright and Co.), 4th ed., p. 1.

matologist of experience that a correct conclusion can be formed as to the nature of any given affection.

In the matter of laboratory diagnosis great strides have been made in recent years. Thus, tuberculosis may be detected by the von Pirquet test, which consists in applying a tuberculin preparation to a slightly abraded epidermis ; a positive inflammatory reaction within a day or two indicates active tubercle somewhere in the body. A less convenient test is the Calmette ophthalmic reaction, in which the instillation of a drop of tuberculin preparation into the conjunctival sac sets up conjunctivitis in affected persons.

As regards syphilis, the introduction of the Wassermann test has opened up a new era in the treatment of that malady. In latent or doubtful cases it is now possible to obtain confirmatory evidence as to the presence of syphilis in the system. It is also possible by this means to control the results of treatment, and to say definitely when a patient is fit to marry. To my mind, in our present stage of knowledge, no person who has had syphilis is morally justified in entering the married state unless he or she can produce reasonable evidence of the absence of syphilis afforded by the negative result of a Wassermann repeated at least twice. It is a fact that some rare non-syphilitic diseases (for the most part tropical) now and then give a positive result with this test ; but confusion on this score is hardly likely to arise in practice. On the other hand, a negative result does not in all cases absolutely exclude syphilis. In spite of its limitations, the test is indispensable to the scientific dermatologist. It is to be hoped that the pathologists will before long be able to simplify the *modus operandi*, and thus render the test more generally available in all classes of practice. The student or practitioner should realize that in this test we have an enormous addition to our resources in the diagnosis of syphilis, and especially of its remote and frequently obscure results, such as locomotor ataxy and general paralysis. An excellent description of the test by Dr. Harry Campbell will be found in an appendix (see p. 286).

Treatment.

Little will be said under this heading, as the chief points are noted under each disease. Some general observations, however, may be offered.

The treatment of skin diseases demands a wide medical knowledge and attention to many points. Owing to the long time that is frequently required to produce good results, patients are apt to become discouraged, and as a rule the student learns little by attendance at an out-patient skin clinic beyond the rule-of-thumb ordering of a certain number of remedies, external and internal. As a matter of fact, the majority of students are not taught how to apply external remedies, although in the absence of such knowledge the best drugs in the world are robbed of much of their value. In a small book like the present one cannot deal adequately with this part of the subject, but a few hints may be given, and further details will be found under the various diseases.

General Treatment is of much importance. Exercise, habits, and general conditions of environment, should all be inquired into. The Turkish bath, for instance, may be invaluable in a person of sedentary habits and dry skin. Alcohol and smoking, by their action on the heart and nervous system, may exercise adverse influences upon various eruptions. Anæmia demands careful attention, as well as its common causes—pyorrhœa of the gums, carious teeth, and constipation. The nervous system may be at fault, but caution is needed in the use of nerve sedatives, which may not only set up undesirable "drug habits," but may actually aggravate and add to an existing rash, as in the case of chloral, opium, and the bromides.

The state of the circulatory system is, to my mind, one of the most important. A careful physical examination should be made of the heart and bloodvessels, including blood-pressure and sphygmographic tracings. The various backward pressure symptoms upon lungs, alimentary system, kidneys, and circulation generally, should be noted. The malar flush common in mitral disease; the pallor of aortic regurgitation; the blue lips, ears, nose, nails, and other parts

of the terminal circulation in cyanosis; the thinned and easily puckered skin marking a shrinkage of the cutaneous capillaries and fat; the œdema of the eyelids and puffiness of the extremities showing feeble circulation, "anæmia," or backward pressure, are all of significance in relation to skin eruptions. From my point of view, as already stated, a secondary rash following traumatism (which may be of manifold origin) in many cases is really significant of circulatory defect. The aim of the dermatologist who has traced such a connection is clearly indicated. Where there is a reasonable chance of curing the circulatory condition, he must insist on such measures as rest in bed, cardiac tonics, careful diet, purging, electrical treatment, hot-air baths, and massage. In many cases where there is slight dilatation or failure of compensation a patient may be restored to health by prompt measures of the kind. The necessity for watchfulness in this direction on the part of the dermatologist is shown by the fact that many of the patients under notice came for advice as to their skin eruption, and it was only on inquiry that indications of heart trouble have been found in symptomatic faintness, shortness of breath, indigestion, palpitation, and so on. In a surprising number of patients suffering from occupation dermatoses, such as the rosacea of cooks or the dermatitis of housemaids, the eruption was found to be associated with cardiac trouble. From this observation I have been led to the important general conclusion that what we have hitherto been in the habit of calling "idiosyncrasy" or "individual vulnerability" may often be nothing more than the loss, in patients with circulatory inadequacy, of the normal reaction against traumatism possessed by healthy persons. Many cooks are exposed continuously to hot fires, but comparatively few develop rosacea, and the susceptible I have found as a rule to be suffering from some circulatory defect. Further, a cook who has developed rosacea after many years' exposure has been found to have suffered from influenza, the inference in this case being that compensation in a chronic valvular affection had failed owing to post-influenzal weakening of the myocardium. It need hardly be pointed out that an impaired

action of the heart muscle is just as likely as a damaged valve to disturb the balance of the surface circulation. So that smoking, prolonged physical exertion, underfeeding, anæmia, constipation, or other constitutional conditions (*e.g.*, malaria, syphilis), may, from my standpoint, materally modify the onset and duration of various skin diseases.

A miniature local picture of circulatory obstruction may be seen in the pigmentation, itching, and chronic eczematous conditions, commonly associated with varicose veins. A similar condition is produced by garters, and I have known a symmetrical scaly patch on both knees indistinguishable from psoriasis to result from the traumatism of constant kneeling in a tightly gartered patient.

Another practical point that may be explained by the adequacy or otherwise of the surface circulation is the uncertainty with which certain drugs act upon the skin. A good example of this is seen in the vaccine therapy of acne and of coccogenic sycosis. Results sometimes brilliant are at other times negative and disappointing. It is obvious that it is of little use to charge the blood with a curative agent unless the volume and force of the circulating fluid be sufficient to fill the capillaries in the locality of the lesion to be treated. That fact has not escaped Sir Almroth Wright.* It follows that in practice one should take steps to secure free local circulation and to strengthen the circulation, which in acne cases is usually anything but robust.

Locally the circulation may be aided by bandages and rest under conditions affording postural relief. The high-frequency electrical current is a potent aid in restoring circulatory tone and relieving venous stasis. Turkish and hot and cold water baths with vigorous friction are most useful. Massage, properly applied, furnishes valuable aid. The induction of local hyperæmia by Bier's suction cups is a powerful method, and is well worth a trial in severe acne and rosacea cases. In baldness these methods are rational, but require prolonged application. The shrinkage of surface capillaries met with as an ordinary senile change is apparently an out-

* *Practitioner*, September, 1910.

standing pathological feature in premature baldness. Even in old age it is by no means a necessary or essential change, for some individuals preserve a good head of hair and a well-nourished, movable scalp at an extremely advanced age.

If my conclusions be correct, the dermatologist of the future will deal with many diseases of the skin by a carefully supervised course of treatment of the heart condition. There is no logical escape from that position in cases where the symptomatic relation of the skin to the circulation is recognized.

Internal Treatment.—Certain drugs are given for their action on the skin, and some few of them doubtless exercise a direct topical action in that way. At the best, however, such action is variable. Clearly, the local effect might be aided by hot-air or water baths, by sudorifics, by Bier's suction cups, or by irritant applications.

Arsenic was formerly the sheet-anchor of dermatologists, but some of them nowadays use it either not at all or only on rare occasions. Considering the injury to kidneys and other organs that is produced by this drug experimentally in the lower animals, its use in large or prolonged doses is likely to lead to similar organic mischief in man. Various thickened, scaly, and papular eruptions have been ascribed to arsenic, and even epithelioma (Hutchinson).

In the right place, and rightly used, arsenic is a valuable drug, especially in some chronic scaly eruptions. It is best given in the form of Fowler's solution, ♏iii.-v. thrice daily, increased to ♏x. until the disease yields or symptoms of arsenical irritation show themselves. It should always be freely diluted, and taken invariably after meals. The danger-signals are conjunctivitis, coated tongue, and abdominal pains. Arsenic should never be given unless the tongue is clean and the digestion in good order. It may also be prescribed in the form of Asiatic pill, each containing $\frac{1}{12}$ grain of arsenious acid, one to be taken thrice daily and increased to six or eight.

Arsenic is useful in psoriasis, lichen planus, chronic

thickened eczemas, and other dermatoses, also in pemphigus. It is harmful in acute forms of dermatitis and in acne.

Salvarsan, or "606," is a recent preparation introduced by Professor Ehrlich of Frankfort, and contains some 36 per cent. of arsenic. It is sold in small tubes in the form of a yellow powder having a strong acid reaction. For use it is first neutralized by an alkali, such as a 15 per cent. solution of sodium hydrate. It may be injected intramuscularly or subcutaneously, for which purpose it is rubbed up with ℥x. of the sodium hydrate, and sterile water added drop by drop to 10 c.c. Both these methods are apt to be very painful, the pain sometimes lasting for a week or more. The intravenous method is largely used. For this method an average dose is 0·5 gramme dissolved in 0·94 c.c. of the sodium hydrate solution, and 250 c.c. of 90 per cent. physiological salt solution added. The solution must be filtered to remove solid particles. Freshly distilled water should be used. Distilled water that has been standing a few days swarms with bacteria, and if boiled the dead bacteria subsequently injected into the body set up fever and other symptomatic reactions.

The intravenous method of administration is not without its dangers. Fatal results have followed its repetition within ten days or a fortnight. There are also the risks of surgical accident, such as that of air entering the vein and of sepsis.

Another form in which salvarsan can be injected is that of "Joha," a semi-solid preparation ready for use. It can be injected deeply into the flank, and the author has found it convenient in practice, as it causes no after-pain; it can be administered in the consulting-room, and the patient sent home with directions to keep quiet for the rest of the day. I have used "Joha" in nerve syphilis and in several cases of malignant syphilis in which ordinary treatment by mercury and the iodides was of no avail, but in which the "Joha" acted like the proverbial charm.

A single dose of salvarsan appears now and then to cure syphilis, and the fact of cure can be ascertained by means of a Wassermann test. Should the test give a positive result,

salvarsan should be again administered, but an interval of several weeks should be observed between the doses. It seems to be generally agreed by authorities that ordinary treatment by mercury and the iodides should always supplement that by salvarsan.

Antimony is advocated by Sir Malcolm Morris, who in acute inflammatory conditions gives the wine (ɱ v.-xii.), repeated if necessary in an hour, and again after two hours. It should obviously be used with care in patients having a feeble circulation.

Mercury is one of the most important special drugs in dermatology ; its value, both as an antiseptic and an antisyphilitic agent, depends upon its bactericidal properties. It may be administered in various ways : by the mouth in the form of grey powder or blue pill, or as the liquor hydrargyri perchloridi ; the red or green iodide may be given in pills. It may be administered by fumigation or by inunction, or, in the form of " grey oil," may be injected deeply into the flank. The soluble salts may be introduced directly into the veins by intravenous injection. After one or two doses of salvarsan it is a good plan to keep up mercurial treatment by mercurial injections into the buttock, half a dozen with a week's interval between, then a month's remission, and so on for a period of two years.

Certain precautions must be observed in administering mercury. The soluble salts are extremely poisonous, and are rapidly absorbed through the skin, especially if applied to a broken surface. Hence the use of ointments or other preparations should not be kept up for too long a time nor used over too large a surface. Deaths, for instance, have been recorded from a hair lotion of corrosive sublimate. The evidences of mercurial poisoning, such as salivation, diarrhœa, abdominal pain, dermatitis, anæmia, tremors, albuminuria, should be borne in mind.

Mercury should not be given unless the gums and teeth and the alimentary canal are in good order. Neither should it be administered to patients suffering from nephritis or other serious organic disease or debility.

As an external application it is of great value as an antiseptic and bactericide.

Salicin and the salicylates sometimes cure psoriasis, but their action in this direction is uncertain. Salicin acts as a tonic, but the salicylates are depressant, and should not be given in conditions of lowered vitality. Both drugs are invaluable in erythema nodosum and in the rashes more or less directly connected with rheumatism, such as purpura rheumatica. Erythema multiforme sometimes yields to the salicylates. It should be remembered that an eruption, at times hæmorrhagic, is caused by either drug. A much-used substitute is aspirin.

Quinine is a valuable drug, although its action on the skin is probably for the most part indirect. It has been recommended in large doses for lupus erythematosus (Payne).

Iodide of potassium is invaluable in the later stages of acquired and in hereditary syphilis. It sometimes causes a large papular or nodular eruption, which may ulcerate. It forms the active ingredient of various proprietary "blood-mixtures," and fatal cases have followed its indiscriminate use in that way. In large doses it is the one remedy for actinomycosis. It sometimes cures psoriasis when there is no suspicion of a syphilitic origin. When the potassium salt is badly tolerated by a patient, the iodide of sodium may be substituted.

Iron is a sheet-anchor of the dermatologist, as, indeed, it is of the general physician. A large number of skin diseases are associated with anæmia, and it is obvious that under such conditions the normal resistance of the skin against bacterial invasion and other forms of traumatism must be correspondingly lowered. Anæmic conditions are probably always sooner or later attended by more or less weakening of the heart muscle, in which case a defective capillary circulation will be added to the deteriorated blood, and these two factors combined must obviously lessen the normal nutritive, defensive, and curative functions of the skin.

Iron should not be administered unless the tongue is clean and the bowels properly regulated. Where the usual prepara-

tions, such as tinctura ferri perchloridi or the sulphate, cannot be borne, a patient will sometimes tolerate reduced iron, or the syrup of the phosphate or Easton's syrup. The syrup of the iodide is valuable, especially for children. A prescription that has always been deservedly popular amongst dermatologists is—

℞ Ferri sulphatis - - - - gr. i.-ii.
Magnesii sulphatis - - - - ʒi.
Aq. menth. pip. - - - - ad ʒi.

M. Ft. mist. Mitte tales ad ʒvi. Sig.: ½ to be taken in half a tumblerful of water in the morning, fasting.

Thyroid gland has a specific action in myxœdema. Some cases of psoriasis and of psoriasiform eruption yield to its action, but such results are rare and uncertain. That thyroid exerts an influence upon the nutrition of skin and hair is clear, but our knowledge is so far inadequate for its proper control. It is useful in ichthyosis and in some conditions of alopecia. Thyroid gland should never be administered except under medical supervision. Thyroidism is shown by a rapid pulse, feverishness, great muscular weakness, prostration, headache, giddiness, and even delirium. It is best taken at night, and in large doses the patient should be kept in bed. Chronic thyroidism is shown by emaciation, loss of hair, dilated pupils, quick pulse, and general debility.

Ichthyol is used largely in skin practice. Internally it acts as an intestinal antiseptic in constipation cases, and the sulphur which it contains is said to be absorbed and to act beneficially on such skin conditions as rosacea. It can be best administered in pill or cachet. Externally it can be applied as an ointment (20 to 30 per cent. with lanoline or with olive-oil and lard) for psoriasis, rosacea, acne, and other dry chronic eruptions. Unna recommends an ichthyol paste for rosacea: Starch 40, moisten with water 20, and rub in ichthyol 40, and lastly strong solution of albumin 1 or 1½. This is painted over the surface, and can be readily washed off.

Local baths are often invaluable in the treatment of feet, legs, hands, limbs, genital region, and so on.

Varnishes are at times useful. They are based on Pick's linimentum exsiccans, which is painted on the skin, where it leaves a thin transparent film. Various drugs can be incorporated with the varnish, the basis of which is tragacanth 5, glycerine 5, and water 100. The varnish is usually meant to act as a soothing and mildly astringent application, but it can be made stimulant by the addition of drugs such as salicylic acid or resorcin.

External Treatment—*General.*—A great point is to know when to stimulate and when to soothe. Broadly speaking, the former is indicated in chronic, and the latter in acute conditions. Another practical point is to use weak applications as a general rule. Mild, long-continued stimulant and antiseptic treatment often succeeds in the long-run where heroic measures either fail or render matters worse.

Baths are of much service. In chronic dry affections, hot baths, with scrubbing to remove scales, are useful. Active remedies may be applied directly upon leaving the bath, or the water may be charged with some drug. The bath can be made soothing for inflammatory conditions by the addition of ½ to 1 pound of starch to 25 gallons of water, or a similar quantity of bran or gelatine. In chronic dry, thickened conditions an alkaline bath may be prepared by adding 3 or 4 ounces each of carbonate of soda, of carbonate of potash, and of borax, to an ordinary bath. For continued treatment creolin is invaluable, but the newer cyllin is not so satisfactory for baths. The liquor carbonis detergens makes a good mild stimulant bath, or 4 ounces of solution of coal tar may be added to 25 gallons. The tar bath is administered by applying tar before the patient enters the bath. Sulphur is used in scabies, and in other chronic dry and thickened conditions of skin, also in furunculosis.

Startin's formula is—

℞ Sulph. præcip. - - - - - ℥ii.
Sodii hyposulph. - - - - ℥i.
Ac. sulph. dil. - - - - - ℥ss.

Misce. Sig. : Mix in a pint of water and add to bath.

The *sulphaqua* charge is made up ready for use. A sulphurated bath is made by adding $\frac{1}{8}$ or $\frac{1}{4}$ ounce of sulphurated potash to each gallon of water. Sulphur discolours metal baths, and in that way may lead to a good deal of annoyance and expense.

Powders are of much use in dermatology. The ordinary dusting-powders can be applied conveniently to many situations in the daytime, while at night a wet-pack or an ointment is applied. A good plan for many dermatoses about the cleft of the buttocks and genitals is to apply an ointment thickly at night, to be washed off with warm water and a mild antiseptic swab in the morning, and the parts dusted well with a powder of some such formula as—

℞ Ac. boracis - - - - - ℥ii.
Zinc. oxidi - - - - - ℥iv.
Amyli - - - - - ad ℥ii.

M. Ft. pulvis.

For offensive sweating of the feet a good plan is to soak the feet for a quarter of an hour at night in a bath containing 1 drachm of cyllin to $\frac{1}{2}$ gallon of hot water. The patient to go to bed wearing socks dusted inside with the above powder, and in the daytime to wear another pair of socks similarly prepared.

There are several excellent powders for skin purposes, amongst which may be mentioned dermatol (subgallate of bismuth), a slightly astringent and antiseptic preparation; europhen, especially useful where there is suppuration; and doroform, a mild odourless substitute for iodoform. A capital dusting-powder for almost any purpose can be made thus:

℞ Doroform - - - - - ℥i.
Ac. salicylici vel ac. boracis - - gr. x.
Zinci ox. - - - - - ℥i.
Amyli - - - - - - ad ℥i.

M. Ft. pulv.

For use on the face, the addition of a grain or two of vermilion to a white powder imparts a reddish tinge, which renders it less conspicuous.

Lotions form a valuable method of application. They can be dabbed over the surface with a pledget of wool and allowed to dry. If a powder be suspended in the lotion by means of glycerine, a thin layer is left on the skin. Or the lotion may be applied on saturated lint, and kept in place by a bandage. A stronger action is secured if the lint be covered with oilsilk. The latter method constitutes to all intents and purposes a poultice, and a wet compress is often applied in that way to an indolent or unhealthy ulcer. Lotions are used for the scalp as parasiticides, stimulants, sedatives or astringents, and may be conveniently applied with a brush.

Ointments are largely used in skin practice. They may serve as a protection for tender excoriated or ulcerated surfaces, as the vehicle of various drugs, or as simple emollients (in ichthyosis and other abnormally dry conditions). The basis of the ointment is of some importance. Where absorption is desired some absorbable fat, such as lard, benzoated lard, or lanoline, should be used ; where simple contact of the medicament is required, the best agent is undoubtedly vaseline. Many dermatologists prescribe equal quantities of lanoline or benzoated lard and vaseline, or they add 2 drachms of almond or olive oil to the 1 ounce of lanoline.

Ointments are divided into (1) cold creams ; (2) pastes or stiff ointments ; (3) ointments proper.

1. Cold creams are cooling or refrigerant by the evaporation of moisture which they withdraw from the skin. The officinal preparation is unguentum rosæ compositum, which is often used as a vehicle for applying various medicaments. The cold cream should be spread on the skin in a thick layer ; it should not be rubbed into the skin, neither should it be covered in with an impermeable material.

2. Pastes are stiff mixtures of fat, such as lanoline or lard, with a large percentage of powder—20 to 50 per cent. Lassar's paste is the familiar example :

℞ Zinci oxidi, Amyli - - - - - āā ʒii.
Ac. salicylici - - - - - gr. x.
Vaselini - - - - - ℥ss.

This is a valuable application for acute weeping eczema, but if there be much irritation the salicylic acid should be omitted. Other drugs can be added if desirable. Pastes should be rubbed on the skin to form a thin layer, and can be covered in with oilsilk or other impermeable material, or simply with cotton-wool and bandage.

3. Ointments are the most generally used applications in skin work. Their efficacy depends to a great extent on the way in which they are applied.

Clearly, the efficacy of an ointment must be influenced by its degree of access, length of application, absorbability, and various other conditions. It is of little use, for instance, if applied over thick crusts or scales, and a first step should be to remove the latter by means of washing with soap and water, friction, prolonged baths, or soaking with oil or vaseline, and subsequent removal by poultice. An excellent way of cleaning up a given area of skin is by the starch and boracic poultice. It is made by adding a teaspoonful of boracic acid to 4 ounces of wheaten starch, and pouring on it 1 pint of boiling water. This is spread thickly on lint, and bandaged over the part. It should be renewed three or four times daily. Alan Jamieson, who introduced this method, says it should not be covered in with oilsilk.

An ointment applied simply as an emollient need only be rubbed in, preferably after a bath. Some ointments, such as parasiticides, may also be efficiently applied by the process of rubbing into the skin. Mercurial ointment, for instance, is best rubbed into the skin before a fire. In scabies and ringworm parasiticide ointments may be rubbed in firmly for ten minutes at a time, night and morning. Good friction with ointment is also excellent in many chronic and thickened conditions of skin. It constitutes, in fact, an excellent combination of drug medication and massage. A common fault in applying ointments is that sufficient time and trouble are not devoted to the application.

Stopford Taylor advocates the following plan : After cleaning the parts with antiseptic lotion, boracic acid and starch (1 to 7) poultices are applied until the parts are judged fit for

ointment. The skin surface under the poultice he usually protects with a powder. The ointment is applied on lint, previously wrung out with water. "As the lint is wet," he writes, "it does not absorb much of the grease, and being wet it keeps cool, and prevents the grease melting with the heat of the body, and finding the path of least resistance—viz., outwardly. Pastes and ointments, after being spread, are always faced with butter-cloth, and this is of the greatest importance." * The latter point is explained by the facts that the ointment can be effectually removed from the skin, and that surface drainage is facilitated.

The outer layer of impermeable material always heightens the effect of the drugs. A useful practical hint is to warm an ointment before use, as in that way it is more readily and smoothly applied, and its "covering" qualities are much increased.

Unna, who has worked wonders in skin-therapy, has introduced salve muslins and plaster muslins. The salve muslins are coated on one or both sides with ointment, and form a cleanly and convenient method of application. The plaster muslins are impermeable on the outer side, and are more powerful in their action. They can be bought incorporated with various drugs.

The salve stick is made of a stiff basis which can be rubbed on to the affected part. It is charged with various drugs, as sulphur for acne and chrysarobin for ringworm.

Soaps are made in great variety for the skin. It is doubtful whether the short application of their lather can have much effect in the majority of skin lesions. When rubbed thoroughly into the scalp, they are likely to be more efficacious. One of the best methods for the scalp is to make a spirit soap with some such formula as the following:

℞ Sapo mollis - - - - - ʒi.–iii.
Sp. vini methyl. - - - - ad ʒviii.

M. Ft. sapo. liq. Sig.: Make a lather and use as a shampoo.

* Stopford Taylor, M.D., "Some Practical Points on the Treatment of Eczema," *Medical Press and Circular*, October 16, 1912.

With this various drugs, such as liquor carbonis detergens, cyllin, or carbolic acid, can be incorporated.

In the treatment of scabies sulphur soap is recommended; biniodide, resorcin, salicylic acid, and mild carbolic soaps are useful in conjunction with hot boths in some chronic skin affections.

X Rays.—The X-ray treatment of skin affections is, in the right place, one of value. It should, however, always be used with caution, and administered by an expert. Some cases of lupus vulgaris and of rodent ulcer can be cured in this way, and many chronic diseases that have resisted other modes of treatment are materially benefited by a mild course of X-ray treatment. In the treatment of ringworm it is a powerful and most efficient remedy. Great care must be taken, however, in its application, for even in the most skilful hands the treatment has been followed by permanent baldness. One of the most dangerous sequelæ is that of epithelioma, and it is now recognized that telangiectases and other remote pathological accidents may follow years after the original exposure.

On the whole, it may be said that the modern tendency is to resort less and less to the X rays as a method of routine treatment, and to use them only in certain diseases, such as ringworm, or in those that have proved rebellious to other forms of treatment. The X rays exert considerable influence over malignant growths; they cure some superficial forms, and are of special service in the dispersal of recurrent nodules after surgical operation.

Radium is often attended with brilliant success in rodent ulcer. It has not so far answered the expectations formed by enthusiasts as to its therapeutic powers in other directions. A future may perhaps lie before radio-active drugs and radio-active waters in the treatment of skin. It is of great interest to note that radio-activity has been found present in the natural waters of Bath, Buxton, Harrogate, Bristol, and other famous British spas.

The recent report (1913) of the Radium Institute shows that it is of value in the treatment of rosacea, while it relieves and sometimes cures ulerythema centrifugans; is a tolerably

certain, if not constant, cure for rodent ulcer ; not very satisfactory in ordinary lupus ; relieves and sometimes cures chronic eczema ; sometimes causes psoriasis to disappear, but recurrence is common ; and benefits most forms of malignant growth, but is not regarded as a cure.

Electrical treatment is of value in many ways. Faradization is a valuable means of treatment in some chronic diseases. By means of ionisation medicaments can be introduced into the tissues ; treatment can be localized ; it is painless, and the drugs are in an active nascent state. Copper has been found effectual in ringworm ; magnesium in warts ; zinc salts in very feeble doses for stimulating the growth of hair ; zinc is also used for pustular eczema, lupus vulgaris, lupus erythematosus, rodent ulcer, epithelioma, and flat, senile pigmented warts.*

The high-frequency current is a valuable stimulant to nutrition, and probably acts by toning up the circulation.

Electrolysis is described under Superfluous Hair (p. 172). It is useful in the destruction of nævi and of moles and warts, and as a powerful stimulant to many small local hypertrophies of the skin.

Faradization is sometimes useful in skin affections, and helps in promoting the growth of hair.

Carbonic snow forms an excellent application for many purposes. Compressed liquid carbonic acid gas is permitted to escape from a cylinder, when it takes the form of semi-solid snow, which can be pressed inside a tube to a convenient crayon form. An ordinary vascular nævus requires moderate pressure for about thirty seconds ; warts require a longer time and firmer pressure. It is an excellent remedy in lupus erythematosus, lupus vulgaris, moles, and various chronic thickened dermatoses and keratoses.

Bier's hyperæmic methods have a considerable application in dermatology. Many chronic eruptions of the extremities can be greatly benefited or cured by the application of an elastic ligature round the limb, tight enough to produce con-

* For fuller information an article by Dr. Lewis Jones, *British Medical Journal*, 1908, vol. ii., p. 117), may be consulted.

gestion, but not to stop arterial pulsation. This can be applied for five minutes twice daily, and the application gradually increased both in length and in frequency until the india-rubber tube is applied for fifteen minutes five or six times daily. Another method is by suction cups, which are applied to the skin, and emptied of air by means of an india-rubber exhaust ball. This can be applied for a few minutes at a time at long intervals, gradually increasing to a quarter of an hour with short intervals. The method is useful for boils and carbuncles, but can be used in severe acne and many localized chronic inflammatory states. The cups can be bought of various shapes and sizes to suit the varying curves of the skin surface.

One of the most powerful of Bier's methods is obtained by an application of the hot-air bath, invented in England under the name of the Sheffield-Tallerman treatment. It has a potent action in skin diseases, and years ago I recorded a case in which a chronic eczema generalized over the body was cured by the treatment of one arm, which alone was placed in the hot cylinder. I have found the hot or " superheated " (as it has been incorrectly called) air bath of the greatest service in restoring an impaired skin circulation, and thereby aiding the local action of drugs. Its action may be compared to a limited extent with that of the Turkish bath, but the hot air has a much more powerful general effect in draining the deep tissues and in reducing pain and swelling.

No attempt will be made to discuss in detail the multitudinous array of drugs that have been introduced of recent years into skin practice. In describing the various diseases mention will be made of drugs that have proved useful in treatment. As already pointed out, the method of application is often just as important as the choice of a particular drug. Some of the most successful dermatologists have worked with a severely restricted list of remedies.

CLASS I

DISORDERS OF CIRCULATION

Hyperæmiæ.

ERYTHEMA means literally a redness of the skin. It may vary in degree and duration, and is met with under various general and local conditions. Its sole recognizable symptom may be redness fading under pressure, in which case it is due to active or passive congestion of the cutaneous bloodvessels ; or it may go on to the secondary inflammatory stages of exudation, desquamation, microbic infection, and so on. In its simple forms it is usually associated with some definite internal or external irritant. Familiar examples of external irritants may be found in the application of heat or a mustard plaster. The toxic erythemata are of very vared origin, such as certain articles of food, kidney disease, rheumatism, or abscess. The toxins may act either directly on the skin, a process described by the author as " excretory irritation," or indirectly through the central or peripheral nervous system. Acute flushing of the face may be caused by emotion, or by the action of drugs, as alcohol, upon the brain centres ; local traumatism, as from heat, may act directly or reflexly through the nervous system, and once started may drift into chronic erythema, with dilated capillaries and secondary exudative processes.

The erythemas may be conveniently divided into

A. Congestive, or passive ;
B. Hyperæmic, or active ;

and the latter subdivided into simple and exudative forms.

A. Congestive.

1. **Simple Congestive Erythema** shows at the terminal points of circulation. The affected parts are purple or bluish, and the colour disappears under firm pressure. The condition may be symptomatic of a variety of causes, such as impeded circulation from local pressure (*e.g.*, ligature), diseased bloodvessels, or feeble heart ; in its more marked forms it is associated with cold or with an angioneurotic condition.

From the author's point of view, the nutritional changes due to abnormal vascular conditions—more especially cardiac valvular troubles—play an important part in the causation, extension, duration, and recurrence of various skin conditions. For instance, a valvular heart murmur will be found in the majority of obstinate cases of rosacea, and in cases where a chronic spreading dermatitis follows a trifling injury of the skin, as, for example, a graze of the shins. This important subject was dealt with by the author in a paper read before the Dermatological Section of the British Medical Association at Liverpool, and is referred to in other parts of this book.*

In a typical case of mitral disease, the author has found marked erythema of the malar flush patches, together with erythematous mottling of the arms, bluish congested ears, and erythematous patches on lower extremities, red and coalescing over soles, deep purple over the malleolar region, and mottled up the legs. The patient suffered much from cold legs (from knee downwards), but the hands were as a rule warm ; the feet were attacked severely with chilblains every winter. The subject cannot be fully discussed here, but it may be pointed out that erythema is apt to occur in sites such as forearm and feet, which are apt to be the seat of symptomatic pain in heart disease. If the observation be correct there is probably a reflex neurosis at work.

The influence of the passive local congestion due to varicose

* See also abstract of article, *British Medical Journal*, September 10, 1912.

veins in producing eczema is familiar to all medical men. A more advanced pathological consequence is local necrosis, and may be compared with the more general changes in skin brought about by raised pressure in the venous system. The specific congestive erythemata are as follows :

2. Raynaud's Disease.

Synonym.—Symmetrical gangrene.

This usually symmetrical condition affects the terminal parts of circulation, especially hands and feet, nose and ears. At first there are attacks of ischæmia, in which the parts become white and numb ; as the disease progresses they become permanently livid (blue) and cold. Nutrition suffers. The power of recovery from injuries is impaired or absent. Small blisters, ulcers, or gangrene develope, with partial or complete destruction of tissue. Marked subjective symptoms, such as burning, tingling, and itching, are often present. The disease is sometimes fatal. It is essentially an angio-neurosis, probably of central origin, characterized by a paroxysmal spasm of bloodvessels, causing *ischæmia* when the arterioles, and *cyanosis* when the venules are involved ; it is accompanied eventually by atrophic changes, which in some cases affect even the bones. Syphilis or malaria may be a contributory cause, or other general conditions, such as Bright's disease, diabetes, alcoholism, mania, etc.

Treatment is unsatisfactory. Massage and galvanism may be tried with the negative pole in salt solution, in which the affected part is placed. The author has found benefit from the internal administration of thyroid gland and the passage of a continuous current (5 to 7 milliampères) through the neck, the negative electrode being placed over the region of the suprasternal notch, and the positive over the upper cervical spines. Quinine is sometimes useful, and opium when painful paroxysms occur in middle-aged and old persons. Warm clothing and avoidance of cold are essential ; washing in warm water and residence in a warm climate may be advised. Recently Bier's hyperæmic method by the appli-

cation of a tourniquet to the affected limb has been much lauded.

It seems not unlikely that minor degrees of Raynaud's disease are often unrecognized. The condition is commonly associated with chilblains, in which case it represents the abnormal reaction to traumatism—namely, cold—due to a defective circulatory condition. The later atrophic conditions of this affection are simply a matter of degree.

3. Intermittent Claudication.

A condition resembling Raynaud's disease, but confined to the legs, and accompanied by pain, especially after walking. Endocarditis is usually present. The same parts may be affected reflexly by pain and tenderness in valvular disease, and the cutaneous symptoms may fairly be regarded as also of reflex origin.

4. Chilblain.

Synonyms.—Erythema pernio ; Ger., Frostbeule ; Fr., Engelure.

Chilblain occurs chiefly during cold weather in persons of feeble circulation and poor health. It is common in the young and the old, and amongst tuberculous patients. It affects chiefly the hands and feet, occasionally the ears.

It first appears as a red or dusky patch, often on the little toe or inner side of the hand or on a finger, which itches and burns intensely. Vesication may follow, with formation of blebs, which break and leave an ulcerating surface, the " broken chilblain," painful and difficult to heal.

Etiology.—Predisposing causes are found in defective bodily health or environment. Jonathan Hutchinson has described a " chilblain circulation," in which the patient is apt to suffer from chilblains and from *lupus erythematosus*, conditions which are at times found associated in the same subject. Cases are recorded in which a recurring pernio has become the seat of a typical *lupus erythematosus*. As explained in the foregoing section, the author regards chilblain

as the result of an unhealthy reaction to the traumatism of cold in tissues whose resistance has been lowered by some abnormal circulatory condition, such as valvular disease, myocardial degeneration, arterio-sclerosis, Raynaud's disease, anæmia, and so on.

Exciting causes are traumatic, of which the chief is, probably, exposure to cold. Other forms of local injury arise from tight boots, warming cold or numb hands before a fire, or washing frequently in hot water.

Diagnosis.—This is as a rule easy. A red patch, fading on pressure, appears on the extremities ; it itches and burns, but is cool to the touch. It often resembles *lupus erythematosus*, but, unlike that condition, usually disappears during the summer. Its occasional occurrence on ears, nose, and rarely on other parts, should be borne in mind.

Treatment.—The general health should be fortified by cod-liver-oil and tonics. Good food, warm clothing, regular exercise, and cold or tepid baths, are indicated. Locally, warm woollen socks and gloves should be worn, and the hands or feet be rubbed when cold, not warmed before the fire ; they should be washed, not in hot, but in cold water, and well dried with a soft Turkish towel. A Swedish cure is to run over the snow with bare feet, a plan which has been described to the writer as most effectual from a preventive as well as a curative point of view. The unbroken skin may be rubbed with a stimulating lotion, such as the camphorated soap liniment or " bay rum." Iodine in various forms, as the ointment or tincture, is an excellent application. The parts can afterwards be treated with a 50 per cent. ichthyol ointment, wrapped in cotton-wool and bandaged. For " broken " chilblains mild antiseptic and soothing applications are required, such as ichthyol (10 per cent.), carbolic acid ($\frac{1}{2}$ per cent.), boracic acid, etc.

A good old-fashioned remedy is to paint the unbroken blains several times daily with a pigment composed of tincture of iodine ℥ii. and solution of chlorinated soda ℥vi. A useful ointment is benzoate of zinc gr. xx. ad ℥i.

B. Active or Hyperæmic Erythema.

I. *The Simple Erythemata.*

1. Erythema Simplex.

Under this title may be included a number of conditions of skin marked by redness without any appreciable amount of exudation. In addition to those forms of nerve origin, central and reflex, and those due to traumatism (a common cause), there are the toxic erythemata, from the circulation of certain noxious substances or drugs in the blood. Among this latter group may be mentioned the skin lesions connected with the rheumatic poison and the varied rashes symptomatic of scarlet fever, measles, enteric fever, and other exanthems. Many irritant substances, such as mustard and cantharides, produce a transient redness when applied to the skin, and this may proceed to the degree of vesication if the application be prolonged. Some of the special forms of erythema simplex, as above described, are *erythema traumaticum, erythema caloricum, erythema ab igne, erythema venenatum, erythema symptomaticum* (toxic); and to these may be added *erythema fugax,* a slight and fugitive form allied to urticaria, and *erythema paratrimma,* a name given to the deep and livid redness which precedes a bedsore.

Diagnosis.—This is not difficult, as the only sign is the primary lesion of redness. Causation, however, may be obscure.

Pathology.—There is congestion of bloodvessels, with surrounding migration of leucocytes and some œdema of the dermis. There may be exudation between the layers of the epidermis.

Treatment.—Exclude the source of irritation, and apply soothing applications, such as the boracic starch poultice, boracic and calamine lotions, dilute black wash; or dusting-powders alone may be sufficient.

2. Erythema Scarlatiniforme.

This is a special redness of the skin, arising from a variety of causes. In the acute form it bears a close resemblance to scarlet fever, and it has often been mistaken for that malady. The rash is usually punctiform, but may be macular or diffuse. There is usually some constitutional disturbance and slight rise of temperature at the onset, with more or less desquamation within three or four days of appearance of the eruption.

Etiology.—Predisposition plays an important part, as in many forms of erythema; for instance, certain persons are unable to take quinine. The affection has been traced to a number of differing toxæmias, such as those of kidney disease, abscess, rheumatism, gonorrhœa (often copaiba), various articles of food, and multitudinous drugs. An interesting transient punctiform rash that sometimes follows enemata may be compared with the more specific scarlatiniform erythema, but the principle is the same—namely, the excretion or attempted excretion of an irritant toxic substance circulating in the blood. Many years ago, in the early days of antitoxin injection for diphtheria, I pointed out the probability of the occasional scarlatiniform rash resulting therefrom being symptomatic of the direct excretion of a toxic irritant substance by the cutaneous glands. Some dermatological writers have done me the honour of adopting the precise phrase used by me, ascribing the erythema to " an irritant circulating in the blood."

Diagnosis.—This is important, and the practitioner who grasps it thoroughly may now and then save himself from an unpleasant position with patients who do not appreciate the difficulty of diagnosis. In erythema scarlatiniforme the fever and general disturbance are slight; the rash appears rapidly, often last or not at all on the face; the fauces are red, but not swollen; the tongue does not present the typical " strawberry " look of scarlatina, while desquamation begins early, on the third or fourth day, and involves a large area.

Treatment is simple—a saline mixture, light diet, and soothing applications to the skin.

3. Erythema Intertrigo.

Synonyms.—Intertrigo ; Chafing.

Definition.—An extremely common affection of the skin characterized by redness limited to surfaces that lie in apposition to one another, attended by sweat changes.

Symptoms.—Intertrigo appears in the armpits, groins, navel, the cleft between the buttocks, between the female breasts, the bends of the joints, and, generally, wherever folds of skin are thrown into close contact, as in the neck or groin of a baby. The surface is red, and usually moist, although sometimes the sweat is arrested. Not infrequently there is excoriation, and the sweat becomes ill-smelling, sometimes most offensive, owing to chemico-bacterial decomposition of the secretions.

Etiology.—The obvious causes of heat, moisture, and friction, do not explain the onset of the trouble, which may be induced by superadded external causes of irritation and by diminished resistance in the individual. Soap is undoubtedly a common exciting cause, especially in infants. Secondary changes may be set up by various pyogenic and other organisms ; while the primary cause is said by some observers to be commonly due to seborrhœa. Local discharges are apt to set up intertrigo, as in incontinence of urine and diabetes.

Diagnosis.—An intertrigo may be detected in any stage by duly considering the facts of its site and origin. It may be distinguished by the absence of itching and other subjective signs, by the non-infiltration of the underlying skin, and by the absence of a discharge that stiffens linen. At the same time it must be remembered that a simple intertrigo may readily drift into an eczema.

From *eczema marginatum* (Hebra) it is known by the well-marked or " festooned " red margin of the latter, and by the fungus found upon microscopic examination of a scraping soaked in caustic potash. In intertrigo the most advanced stage is in the older parts of the eruption rather than at the advancing border.

In infants it may be necessary to distinguish erythema of the " napkin area " (Jacquet) from that of syphilis. The

latter is not confined to the parts covered by the napkin, but often runs down to the foot, and is accompanied by other evidence of syphilis.

Treatment.—Tonics and purges are sometimes needed, especially in the gouty. Locally, the first essential is cleanliness, for which purpose washing with a good antiseptic soap and warm water is required at least twice daily ; afterwards the parts should be thickly dusted with a powder containing zinc oxide, 1 drachm ; salicylic acid, 20 grains ; magnesium, 1 drachm ; starch to 2 ounces. Boracic acid is good unless there is much excoriation, when it is apt to become painful. Camphor can be added if there is much odour in the discharge. The affected surfaces should be kept apart, if possible, by strips of gauze or silk. A good plan in obstinate cases is to sew the dusting-powders in muslin bags, which are kept in place by a bandage. Sometimes it may be necessary to use lotions or ointments. In gouty persons an erythema will sometimes yield to the internal administration of ichthyol. Sources of toxic disturbance must be carefully searched for, and if possible relieved. The state of the gums and teeth should be ascertained as a matter of routine in all cases of erythema.

II. Exudative Erythemata.

4. Erythema Multiforme.

Synonyms.—Erythema exudativum multiforme ; Fr., Érythème polymorphe.

Definition.—An acute inflammatory eruption of the skin characterized by bright red or dusky macules, papules, or even tubercles, sometimes developing into vesicles or blebs, of short duration, and apt to attack the mucous membranes of the mouth, the lesion being variously situated and grouped or scattered, and presumably due to some internal and often quite obscure irritant circulating in the blood.

Symptomatology.—The eruption occurs chiefly on the limbs, and is nearly always symmetrical. Although essentially multiform, one particular type commonly predominates. The

eruption begins as flattened, slightly elevated red patches, in size from a pin-point to a sixpence. The attack lasts for a few days, or in severe cases for weeks, or even months, and tends to recur in some patients for many years. It is most common in spring and autumn, and is often described, according to the dominant type of the lesions, as *erythema papulatum vel tuberculatum; circinatum et gyratum vel marginatum;* or under the special names of *erythema iris* or *herpes iris.*

Erythema circinatum begins as red flat papules, which spread at the edges and form rings, leaving the centre of a lighter or normal shade. Sometimes these coalesce and form gyrate figures.

Erythema iris is due to the formation of several such rings; while in herpes iris the same type is complicated by vesicles and bullæ. The two latter occur symmetrically chiefly on hands and feet.

Erythema multiforme affects the elbows and knees, backs of hands, face, and trunk. The papular and circinate forms are more widely distributed. The small annular forms are met with often on backs of hands, limbs, and trunk, and the large annular forms especially on the trunk.

The rash of erythema multiforme usually appears suddenly, being at its height in twenty-four hours, and subsiding after five or six days, leaving behind a brownish stain. Successive crops may prolong the attack to two or three weeks or more, although the relapses may be frequent, and now and then practically continuous. Herpes iris often recurs three or four times in a year. Constitutional disturbance as a rule is slight or absent, but there is a malignant form in which symptoms run high and death is not infrequent.

The mucous membrane of the mouth may be affected. In one chronic case under my care the oral mucous membranes were attacked and the tongue swollen, so that the patient could barely speak or eat. Such cases are often mistaken popularly for syphilis.

Etiology.—An angioneurotic disturbance of varying origin, but in most cases probably due to some toxic irritant in the

circulation. The poison has been in some cases attributed to food or drugs. In other cases, especially those that are chronic and recurrent, the central circulation is at fault, and valvular or myocardial disease is present; in this case the starting-point is often some slight traumatism. In one of my cases, a marked ringed erythema of the body and limbs, there was a history of prolonged constipation; indol and skatol were found in the urine, and the patient recovered after the relief of the constipation. It is commoner among females than in the male sex. The severe cases are often associated with grave visceral lesions. In quite a number of ordinary cases I have found heart or other circulatory trouble. Pathologically, the condition appears to be allied to lupus erythematosus. Apart from the special forms of erythema nodosum and peliosis rheumatica, no definite relation can be traced between erythema multiforme and rheumatism.

The rapidly-formed macules on the skin are apparently due to the hæmolytic action of a blood-borne irritant. They may be followed by more severe inflammatory processes, exudative in the first stage.

Diagnosis.—This is not difficult if the chief facts of multiformity, symmetry, predilection for the hands and feet, little or no itching, and auto-intoxication, be borne in mind. The severe bullous cases may be confused with *dermatitis herpetiformis*, into which it appears somewhat to merge.

Treatment.—Remembering the etiology, it is well to purge and look after body elimination and the state of the circulation generally. In protracted or recurring cases, some source of auto-intoxication should be specially searched for. Local treatment is conducted on ordinary principles, while the general health is attended to with tonics, such as quinine, iron, and the mineral acids.

Prognosis.—Good as a rule. Scarring sometimes follows the pustular forms. In making a prognosis, the precise nature of the cause must be taken into consideration, including the coexistence of grave internal maladies.

5. Erythema Nodosum.

Definition.—An acute inflammatory condition involving all elements of the skin, characterized by strictly-defined rounded or oval tender swellings, most commonly met with on the shins in young women, and lasting for a few weeks.

Symptomatology.—The nodules or swellings of this interesting form of erythema appear suddenly, as a rule upon the shins, and are ushered in with some amount of malaise, fever, rheumatic pains, and perhaps swelling in the joints. There may be two or three or more of them, and symmetry is a marked feature. They are reddish, usually somewhat firm and tender, sometimes exquisitely so, on pressure, and their size varies from that of a hazelnut to a hen's egg. When oval, the long axis generally corresponds with that of the limb on which they are situated. They never suppurate, but gradually disappear, and show changes in colour corresponding exactly with those shown by a bruise. Fresh nodules may appear, but the whole attack is usually over within a few weeks. They appear rarely on the face or other parts of the body.

Etiology.—The malady is by some authors classed under *erythema multiforme.* It is seldom met with in patients over thirty years of age, and occurs in females compared with males in a ratio of 5 to 2. A history of rheumatism is common, but it seems not improbable that the eruption is of multiple toxic origin.

Pathology.—The process is one of acute inflammation of all tissues of the skin, with dilated lymphatics, congested vessels, small-celled exudation, and numerous mast cells.

Diagnosis.—The nodes with careful observation can be easily distinguished from the results of traumatism. Syphilitic gummata have some resemblance to them, but the gummata are slow-growing, and do not show redness until the late stages. They are more symmetrical and not tender, while sooner or later they break down and ulcerate. At the same time other evidences of syphilis are present.

Treatment.—Removal of possible cause, rest, and light pressure with a bandage are indicated, with salicylate of soda in rheumatic subjects, attention to digestion, circulation, and so on.

Prognosis.—Favourable ; recovery in a few weeks.

6. Erythema Induratum, or Bazin's Disease.

Although described as an erythema, the well-defined malady described originally by Bazin may be more appropriately placed under the tuberculides, despite the fact that in some cases no trace of tuberculous origin can be found. For the sake of convenience it will be described here.

Synonyms.—Bazin's disease ; Erythema induratum scrofulosorum.

Definition.—A malady usually occurring as chronic deep-seated indolent nodules, which ulcerate and resemble broken-down gummata. Usually on calves, sometimes on legs and other parts, and rarely on arms.

Symptomatology.—The processes begin as nodules the size of a pea, which can be felt beneath the skin and are not tender on pressure. At first they may be bright red, but afterwards become darker in colour and develop a purplish areola. They then enlarge gradually to ½ inch or 1 inch in diameter. At this point they may undergo absorption, leaving atrophic depressed pigmented scars. More often, however, they break down into deep, sluggish, rounded ulcers with a purplish margin, suggesting strongly broken-down syphilitic gummata. The indurations are multiple, and both calves are affected. Sometimes they are met with on others parts of the legs, and rarely upon the thighs and arms. The disease may appear in successive crops, and last for years. It is usually painless, but now and then there may be a good deal of pain and tenderness.

Etiology and Pathology.—A rare disease, more common among the poorer classes of society. Some observers have found giant cells, and have induced fatal tuberculosis in guinea-pigs by inoculation of the tissues of the lesion ; others

have failed to find definite proof of tuberculosis. Possibly there are various origins of this well-defined disease in persons of poor health with feeble peripheral circulation. It occurs chiefly between the ages of twelve and thirty years, more often in females.

Diagnosis.—Bazin's disease requires to be distinguished from syphilis and erythema nodosum. From syphilitic gummata it differs in its symmetrical distribution on the calves, its very chronic and indolent course, and its failure to respond to potassium iodide. The presence of syphilis or tuberculosis can usually be ascertained by appropriate tests. Erythema nodosum occurs chiefly on the front of the legs in rheumatic subjects, is of short duration, non-ulcerative, and is tender and painful.

Treatment.—Rest and bandaging are desirable. Relief of circulation, absolute cleanliness, and application of antiseptic dressings, are the leading directions. Attention to the general health is always required in this disease, and prognosis depends to a great extent upon how far the patient can be rescued from his cachexia. Tuberculosis demands active treatment.

Unna's zinc gelatine is sometimes extremely useful, windows being left for dressing the ulcers.

7. Erythema Iris.

Synonyms.—Herpes iris (Bateman); Hydroa; Erythema iris.

Definition.—A special form of erythema multiforme characterized by vesicles surrounded by a red zone or zones, chiefly affecting hands and feet, and liable to recurrence.

Symptomatology.—The attack usually begins in the form of papules, which rapidly become vesicles: these soon dry up and form the centre of a red, somewhat infiltrated flat papule. An outside ring of secondary vesicles may form more than once, and give rise to a target-like lesion. Hands and feet are usually affected. Sometimes a single spot may appear on the back of the hand. On the fingers the target is less marked and is more translucent. The mucous membrane of the

mouth is sometimes attacked, and painful ulcers formed. This form is usually associated with some other form of erythema. It is prone to occur again and again, often in spring and autumn. There is usually some slight fever and constitutional disturbance, and some amount of itching and burning. The disease is self-limited, and usually ends within two or three weeks, but there may be many recurrences.

Etiology.—Probably symptomatic of obscure and manifold toxic causes, sometimes drugs.

Diagnosis.—As a rule easy. When complicated with other forms of erythema and with ulcer in the mouth, it may be mistaken for syphilis. It should be borne in mind that erythema iris sometimes appears on the face, limbs, and trunk.

Treatment.—Salicylate of soda and quinine are both useful, but as a rule little is needed beyond local soothing and antiseptic applications.

Prognosis.—Good.

C. Angioneuroses.

8. Urticaria.

Synonyms.—Nettle-rash ; Hives ; Ger., Nesselausschlag ; Fr., Urticaire.

Definition.—Urticaria is a generalized inflammatory affection of the skin, acute or chronic, characterized by the sudden appearance of whitish or pinkish wheals, accompanied by itching and tingling sensations.

Symptoms.—Locally the chief point is the sudden appearance of round or oval wheals of the size of a pea to a finger-nail, pink or white in colour, surrounded with an areola of pink. The eruption may be confined to a single wheal or may be general, and several of the wheals may coalesce into irregular shapes. The wheals after a few hours fade away as rapidly as they came, and leave either no trace or a faint pigmentation.

The rash may cause great swelling where there is much loose

subcutaneous connective tissue, as about the eyelids, prepuce, and anus. At times the disease may attack mucous membranes, as those of the mouth or larynx, and in the bronchial tubes may give rise to a sort of spurious asthma.

In one curious form the skin has so marked an urticarial tendency that a wheal can be raised by simply drawing the finger-nail across the skin (*dermatographia* or *urticaria factitia*).

Varieties.—Urticaria may be acute or chronic. Acute nettle-rash may be febrile or non-febrile. In the febrile form there is slight fever and constitutional disturbance, with vomiting, and perhaps diarrhœa, for some little time before the appearance of the eruption. The wheals are always ushered in by more or less intense itching, tingling, and burning sensations, which lead to scratching. In the non-febrile attack there is no general disturbance. The rash appears on the trunk, buttocks, thighs, and arms. The wheals usually fade away without desquamation or other trace within a few hours, but successive crops may prolong the attacks to forty-eight hours.

Among atypical forms are the following :

Urticaria papulosa (Colcott Fox), the "lichen urticatus" of the older writers, a chronic form in which the lesions are small, red, and papular, is seen in early childhood, when tiny urticarial wheals are mingled with scratched papules and excoriations. They are profusely distributed on the trunk (especially the back), and to a less extent upon the limbs. The condition may continue to adolescence, or persists in rare cases to adult life. It appears to stand midway between urticaria and Hebra's prurigo.

Urticaria bullosa, in which excessive exudation raises the epidermis into a bulla.

Urticaria hæmorrhagica, where there is hæmorrhage into the wheals.

Urticaria tuberosa (or *nodosa*), in which the wheals assume a larger size. Large single nodules are sometimes called "giant urticaria."

Urticaria pigmentosa (or *xanthelasmoidea*) is a chronic form occurring in children, regarded by some authorities as an

independent disease. It appears in infancy, a few months after birth, as red macules or papules, which after a time disappear and leave a brownish stain. The neck and shoulders are specially affected, but the eruption appears in successive crops that may keep up the malady for ten years or more. Nothing is definitely known as to the nature and origin of this curious affection.

Giant urticaria, angioneurotic œdema, or Quincke's disease, is characterized by sudden red transient swellings of the skin, chiefly of the face and extremities. In this form the internal mucous membranes are apt to be involved, and alarming symptoms may be produced from implication of the glottis. It is hereditary, and may occur among members of the same family.

Pathology.—The wheal is formed by a circumscribed œdema and anæmia of the papillary body, with congestion of papillæ. There is probably spasmodic constriction of bloodvessels.

Etiology.—Urticaria is a vasomotor disturbance connected with a peculiar idiosyncrasy. Exciting causes may be external or internal. Among external irritants are the bites of insects or contact with certain plants. The vasomotor reflex may be set in motion equally by substances conveyed on the blood-stream, possibly due, according to the author's view, to local attempts at the cutaneous excretion of the irritant, or it may result from the failure of a defective blood-stream to flush away the deposited irritant, or the nerve disturbance may be obviously of reflex or central nervous origin. In these various ways urticaria may result from toxins absorbed from the alimentary tract, as in dilated stomach; from various articles of food, such as tomatoes, shellfish, strawberries, cheese, pickles, pork, sausages, and fish; or from certain drugs, such as salicylic acid, copaiba, quinine, and so on. Various organic disturbances, as, for instance, of intestines, uterus, or the rupture of a hydatid cyst, may cause the rash. The nervous lesion may be in rare instances primary, and the dermatographic or fictitious form is probably of this kind. Savill recorded a case in which an attack occurred before making a public speech.

Diagnosis.—Ordinary urticaria is a well-marked malady, readily recognized by the sudden appearance and disappearance of the wheals, their wide distribution, and their intense itching and burning. It is not always easy, however, to diagnose the condition when a patient is seen after the wheals have disappeared. The atypical papular or nodular forms may be confused with erythema, and the bullous with pemphigus. Urticaria of the face is most often confused with

FIG. 1.—EPIDERMOLYSIS BULLOSA (CONGENITAL): FEMALE, AGED TWENTY-FIVE.

(Dr. Norman Meachen's case.)

erysipelas. In the latter there is less œdema, the redness is more marked, and has a well-defined spreading edge, while the constitutional disturbance is greater.

Treatment.—The first indication is to discover and remove the cause. An emetic and a sharp saline aperient may be needed, followed by salicylate of soda and milk diet. Locally, sponge with weak vinegar and water or mild carbolic lotions. Menthol or chloral ointment (1 drachm to the ounce of benozated lard) is often efficacious. In chronic malarial

urticaria quinine is the best remedy. In urticarial asthma spirit of nitrous ether is useful.

The treatment of the chronic giant form is far more difficult, and often taxes the resources of the practitioner to the utmost. Calcium chloride in 10- or 20-grain doses, which sometimes does good in ordinary urticaria, is uncertain in its effect. Similarly, ichthyol in pills may relieve the condition temporarily. Whiting has found good results from thyroid extract, 2½ grains at bedtime.

9. Epidermolysis Bullosa.

A rare congenital disease, probably allied to urticaria. Its chief distinguishing feature is the occurrence of bullæ upon slight traumatism—*e.g.*, pressure of clothes or friction. It is most common on the hands and feet. It runs in families, and usually affects members of one sex only. The nails are commonly atrophied, and hæmorrhage is apt to occur from the mucous membranes.

Fig. 2.—Epidermolysis Bullosa: Same Case, showing Recent Bulla on Leg.

Treatment is unsatisfactory. Ergot has been recommended.

Through the kindness of Dr. Meachen two illustrations of this rare condition are appended.

10. Prurigo.

Synonyms.—Hebra's prurigo; Fr., Strophulus prurigineux; Ger., Juckblättern.

Definition.—Prurigo is an extremely chronic inflammatory disease of the skin beginning in childhood, characterized by small pinhead to pea-sized pinkish or red papules, which itch intensely.

Symptoms.—The rash appears during the first year of infancy, often in the shape of urticarial wheals, which are followed before long by the characteristic papules on the front of the legs and back of the forearms ; later on the trunk, and rarely on the forehead. The papules are discrete, but often numerous and closely set together. Their intense itching leads to scratching, so that excoriations, pigmentation, and infiltration follow a chronic secondary dermatitis. The scratched papule with the small speck of dried blood at its apex is characteristic. An eczematous condition may ensue, and there is quite commonly enlargement of neighbouring lymphatic glands, particularly those of the groin. The malady is extremely rebellious to treatment.

Etiology.—The disease is commoner in the male sex. Its origin is obscure, but it occurs more often in children of the poor than of the well-to-do, and appears to be connected with poor food and bad hygienic surroundings. It may be associated, however, with various debilitating conditions in all classes of society. It begins in childhood, and may disappear at puberty or early adolescence, or, rarely, it may persist through life. Tuberculosis is sometimes associated.

Pathology.—The histological changes are those of a chronic eczema, and are practically identical with those of a chronic papular eczema.

Diagnosis.—The chief malady from which it must be distinguished is chronic papular eczema. The occurrence of prurigo in childhood, its distribution, uniform lesions, adenopathy, and chronic course, should suffice for its recognition.

Treatment.—Nourishing food, tonics, frequent baths, and good environment, are essential. Cannabis indica, beginning with ♏ 10 of tincture in a child of eight (Crocker), has been recommended for the relief of the pruritus. It is better, however, to depend upon local measures, such as prolonged treatment with alkaline baths—sodium bicarbonate (4 ounces to 30 gallons), cyllin (2 ounces to 30 gallons), or sulphur (4 ounces to 30 gallons) ; or to inunction with ointments of salicylic acid, tar, sulphur, and β-naphthol (gr. x.-xx. ad ʒi.).

Prognosis should be guarded as regards cure, although in most cases some amount of relief can be afforded, and the malady almost always disappears with adolescence.

D. Hæmorrhages.

11. Purpura.

Synonyms.—" The purples "; Fr., Hæmorrhœa petechiales ; Ger., Blutfleckenkrankheit.

Definition.—Purpura is the name applied to hæmorrhages of various kinds appearing spontaneously—*i.e.*, not of traumatic origin—on the skin. The skin is not elevated, the hæmorrhages do not fade under pressure, but change colour. It may occur in apparently healthy persons, but is sometimes associated with joint pains and with various hæmorrhages and grave constitutional disorders. Purpura is possibly or probably in most cases of toxic origin.

Symptomatology.—The hæmorrhages are of various kinds—namely, spots (puncta), lines (vibices), small patches (petechiæ), or large diffuse patches (ecchymoses). They are smooth, reddish or purplish in colour, and do not fade under pressure. When undergoing evolution, they pass through a range of colours resembling the changes that take place in a " black eye."

Varieties.—It is usual to divide purpura into symptomatic and idiopathic groups, but it seems not unlikely that the hæmorrhage is in all cases of toxic origin, and results from changes in the walls of the vessels, in the blood, in the nervous system, alone or in combination, and is due to a toxin or microbe that has entered the blood-stream. Symptomatic purpura occurs in many of the exanthems, and at times is a serious complication in measles and smallpox. It may also be due to certain drugs. The iodides and bromides, for instance, may give rise, not only to cutaneous purpura, but to hæmorrhage from every mucous membrane of the body. It may occur during the course of various diseases, such as rheumatism, anæmia, leucocythæmia, and scurvy.

The so-called "idiopathic purpuras" are divided into simple, rheumatic, and hæmorrhagic.

Purpura simplex is marked by the sudden appearance of bright red or purplish hæmorrhages from the size of a pin-point or pinhead to small ecchymoses, chiefly on the lower limbs. They are painless, occur in crops, are unattended by general symptoms, and last as a rule only for a few weeks, with little or no general disturbance.

Purpura rheumatica is not by any means necessarily connected with rheumatism. It is a somewhat more complex condition than the simple form, characterized by pains in the joints and accompanied by slight constitutional disturbance. The knees and elbows are always affected, sometimes also the ankles and wrists, but rarely the body.

Peliosis rheumatica may be regarded as a more severe form of the foregoing. The constitutional symptoms are more marked and precede the eruption. The knees and ankles are attacked, sometimes also elbows and wrists. Endocarditis is sometimes present, and the constancy with which knees and ankles are attacked points to the probable influence of circulatory pressure as a contributory condition.

Hæmorrhages of various size appear in the neighbourhood of the affected joints, which become painful in degree, varying from slight and fleeting to severe pain and swelling. In the latter event, as a rule accompanied with hæmorrhages into the articular cavity, sometimes localized œdema of an urticarial type is present, or severe gastro-intestinal complications occur. The disease may be prolonged for many months, and relapses are common, but the prognosis is usually favourable.

Purpura Hæmorrhagica. — This grave disorder is usually ushered in with feverish and other severe general symptoms. Large and sometimes confluent hæmorrhages appear suddenly in various parts of the body and extremities, accompanied by bleeding from the nose, mouth, throat, and from the respiratory and alimentary or other mucous membranes of the body. Death may result from loss of blood, especially when internal (*purpura fulminans*).

Henoch's purpura may be described as a severe form of

peliosis rheumatica affecting children. The rash is of a multiform erythema type, with hæmorrhages scattered among other lesions. There may be hæmorrhages from mucous membranes, and abdominal symptoms, pain, vomiting and diarrhœa are always present. The disease has a mortality of about 1 in 5. It presents the clinical picture of an acute septic intoxication with severe damage of all channels of excretory elimination from the body, with attendant dermatoses, inflammations (with hæmorrhagic tendency) of mucous membranes of respiratory and alimentary tracts and nephritis.

Etiology.—In some cases—*e.g.*, in certain drugs—the toxic origin of purpura is evident. Some modern observers attribute all cases to toxic origin, and some have described specific organisms, cultures of which have caused local hæmorrhages when injected into lower animals. The localizing factors are obscure. In *peliosis* the joint pains usually precede the rash by a day or two, and many dermatologists regard the pain as due to interarticular hæmorrhage. Some observers maintain that purpura is essentially a rheumatic manifestation. Norman Walker describes peliosis rheumatica as a special erythema of hæmorrhagic type, with evident rheumatic relationships. In the hæmorrhagic form the coexistence of grave disorders, such as the late stage of phthisis, leucocythæmia, or cancer is often obvious.

Pathology.—The relation of the toxin to the hæmorrhage is obscure. In predisposed persons a bruise may be produced by slight mechanical pressure, and is presumably due to rupture of the capillaries, which then permit the escape of blood into the tissues. Similarly, one may reasonably assume that certain toxins exert a cytolytic action on the walls of the capillaries whereby the passage of the red corpuscles is rendered possible.

Diagnosis.—This is rendered easy by the sudden appearance of hæmorrhages. *Peliosis rheumatica* is a rare disease, and *peliosis hæmorrhagica* still rarer. It is always desirable to exclude the action of drugs, and in rheumatic cases to bear in mind that the salicylates at times give rise to purpuric

patches. *Peliosis rheumatica* may closely resemble erythema multiforme, with its joint pains and mild constitutional disturbance. The restriction of the cutaneous attack to sudden and early hæmorrhages is usually sufficient to establish a diagnosis of purpura. As a rule the free hæmorrhage of peliosis hæmorrhagica brings patients under the care of the general physician rather than of the dermatologist.

Pathology.—The process is one of hæmorrhage into the corium, with subsequent absorption. It is obvious that the bloodvessels must be in some way damaged, either by the direct action of a toxic agent or by some angioneurotic disturbance, or jointly, and that a hæmolytic action is concerned. A hæmolytic action appertains to various organisms, including the staphylococci, which are associated with so many morbid cutaneous conditions. Individual susceptibility may be concerned, as we know how readily some persons are bruised, even the light pressure of a finger being enough to cause a purpuric macule.

Treatment.—Rest in bed, aperients, and simple diet. Among drugs iron is most generally useful. Symptoms must be treated on general lines.

Locally, bandaging with cotton-wool and elevation of limbs may be useful.

Prognosis.—In simple forms the malady is trifling. In *peliosis rheumatica* a cure, although sometimes delayed, may as a rule be anticipated. Recurrence is frequent. In hæmorrhagic cases the outlook is always grave, and a fatal issue is common where there is much internal hæmorrhage. Henoch's purpura is a serious malady.

CLASS II

DISORDERS OF NERVE ORIGIN

1. Pruritus.

Synonym.—Itching.

Definition.—A sensory disturbance of the skin, local or general, due to an irritant, which may be of external or internal origin, often impossible of identification.

Symptomatology.—The symptom of itching is common to many skin diseases. It leads to scratching, with its secondary traumatic infections. In pruritus it is the predominant feature.

Etiology.—Internal causes are constitutional conditions, such as diabetes and jaundice (sometimes early in carcinoma of liver). External local causes are diabetic urine, hæmorrhoids, intestinal worms, fissure. Of external general causes, the commonest is pediculosis, especially in old people.

Age is a predisposing factor. The pruritus of old persons is often most distressing. In winter pruritus cold is the factor, and the irritation may be kept up by the cold morning bath. There is also a form of mental pruritus (Crocker), in which the patient is the victim of a fixed insane delusion.

Pathology.—The irritation of the sensory nerve-endings by various irritants is readily understandable, as also the occurrence of reflex irritations. In some cases I think personally that, in the process of excretion of various irritants by the skin route, the sensory nerve-endings may be more or less directly involved as a part of the process of "excretory irritation." In old persons one important fact appears to have been overlooked—namely, the shrinkage of the cutaneous

capillary area, which is a common, though by no means an invariable, characteristic of senile changes. The altered local conditions must necessarily affect more or less profoundly the relation of the cutaneous nerve-endings to all forms of traumatism. In this way nerve pressure between the collapsed tissues may afford a simple key to many a pruritus.

Treatment.—Hot water is sometimes useful, and various remedies may be applied in the shape of warm lotions. Locally the antipruritic remedies most in use are carbolic acid, 1 drachm; glycerine, 1 ounce; with water to 8 ounces. Liquor carbonis detergens, 1 drachm to a pint of warm water, is sometimes seviceable. Alkaline baths succeed in some cases. Camphor (grs. x. to xx. to the ounce of ointment) may be tried. A good antipruritic lotion is the following:

℞ Acidi carbolici - - - - - ʒss.
Cocaini hydrochloridi - - - grs. xvi.
Aquæ lauro-cerasi - - - - ʒi.
Aquæ rosæ - - - - - ad ʒiv.

M. Ft. lotio. Sig.: To be painted over parts.

Internally it may be necessary to administer opium or morphia. The bromides, chloral, and cannabis indica, may be tried; or electrical currents, especially the high-frequency.

In all cases a careful search should be made for parasites and any other sources of external irritation, as well as for possible internal sources of irritation. The urine should be examined in every case.

In the treatment of local pruritus, the cause of irritation must be removed, if possible. In pruritus of the vulva there may be ovarian, uterine, or vaginal disease; in pruritus ani, hæmorrhoids, fissure, and so on. Locally the parts should be washed daily with carbolic acid soap of medium strength, and the parts powdered thickly with a dusting-powder of boracic acid, ʒi.; camphor, ʒi.; oxide of zinc, ʒiv.; pulv. amyli, ad ʒii. Menthol may be applied, or the parts dressed with 20 per cent. ichthyol ointment.

An attempt may be made to make good the surface shrinkage by prolonged hot baths, by the prolonged inunction of simple

ointment, by copious draughts of warm water, or by the subcutaneous injection of sea-water.

In obstinate cases (*e.g.*, *pruritus ani*) the inflamed area may be scraped with a sharp spoon, well swabbed with solution of caustic potash (B.P.), and the process repeated several times at intervals of ten days or a fortnight. Pure carbolic acid may be applied in a similar way.

Prognosis.—In spite of every effort at relief, this symptomatic affection may remain uncured.

2. Anæsthesia.

Anæsthesia of the skin is a common symptom in various nerve disorders, and is interesting to the dermatologist chiefly in connection with the loss of sensation in non-tuberculous leprosy. In the arms and legs, chest, and other areas, it may accompany heart disease.

3. Hyperæsthesia.

Hyperæsthesia is met with in various nerve disorders ; also as an accompaniment of heart disease.

4. Dermatalgia.

Synonyms.—Neuralgia cutis ; Rheumatism of the skin ; Fr., Dermalgie ; Ger., Hautschmerz.

Definition.—Dermatalgia is a painful state of the skin without obvious morbid change.

Symptoms.—The disease is usually confined to small areas of skin, which are to all appearance normal. The disease is one of adult life, and is usually connected with some nervous disorder, or with advanced disease of the heart, in which tenderness of certain areas, such as, for instance, the ulnar border of the forearms, is common.

Diagnosis.—Dermatalgia must be distinguished from intercostal neuralgia, ordinary neuralgia, and muscular rheumatism ; also from the intense pain that often precedes or follows

shingles. In this, as in all other neuroses of the skin, the condition of the heart and circulation generally demands careful investigation.

Treatment.—The patient's general constitution must be carefully overhauled, locally mild galvanic or faradic electrical currents or an anodyne application, such as the ABC liniment (equal parts of liniment of aconite, of belladonna, and of chloroform) or a menthol plaster.

5. Ainhum.

Definition.—Ainhum is an endemic disease almost exclusively occurring amongst negroes, characterized by the formation of a fibrous ring round a digit, most usually the little toe, which undergoes gradual spontaneous amputation.

Symptomatology.—A transverse fibrous ring is formed round a toe, or less commonly a finger. The furrow formed by its contraction gradually deepens, and after the lapse of five or ten years, with or without ulceration, the digit falls off. The amputation takes place as a rule through a joint.

Etiology and Pathology.—The origin of this curious disease is unknown. It is more common in men than in women, and usually occurs in young adults. It appears to be a trophoneurosis of obscure causation, and has been compared with a circumscribed annular scleroderma.

Diagnosis.—Ainhum has to be distinguished from the spontaneous amputations that take place in leprosy, Raynaud's disease, syringomyelia, and other obviously neurotrophic disturbances.

Treatment.—In the early stages division of the constricting ring is found to arrest the condition; otherwise amputation is the only resource.

6. Syringomyelia.

The cutaneous changes which occur in some, but not in all, cases of syringomyelia are of much interest. The primary disease is due to a cavity or cavities in the spinal cord, probably as a rule congenital. Areas of cutaneous anæsthesia are

common, readily distinguishable from leprosy. The signs and symptoms are low temperature, muscular atrophy, spastic phenomena, and joint changes. The trophic cutaneous changes are chiefly glossy skin, with nails that become thickened, brittle, and are often shed. There are sometimes deep-seated ulcers and painless whitlows, and occasionally local sweating. Eczema, herpes, and other skin affections have been noted.

Morand's disease appears to be a variety of syringomyelia. Along with severe neuralgic pains there are analgesia and anæsthesia, with wasting and palsy of the muscles of hand and forearm, abscesses in the small joints, anæsthetic whitlows, and deep necrosing ulcers.

7. Glossy Skin (Paget).

In this condition the skin becomes smooth, glossy, and the fingers taper; they may be pink or have patches of chronic erythema associated with distressing pain. The skin is prone to inflammatory traumatic changes,and may become excoriated and chapped. The nails are apt to become atrophied, with curves both longitudinal and transverse, and thickening of the underlying dermis. The condition is due to local neuritis. In Paget's original cases the brachial plexus had been injured.

Treatment is directed to the nervous system.

8. Perforating Ulcer of the Foot.

Synonym.—Ulcus perforans.

Definition.—A rare, and as a rule painless, chronic ulceration commencing on the metatarso-phalangeal surface of the foot, and extending deeply into a sinus which involves bone and other tissues.

Symptomatology.—The disease usually begins as a corny growth, usually at the under-surface of the base of the great or the little toe. This ulcerates, and leads to a sinus which extends upwards through the foot and leg, involving bony and other structures. It is usually single and painless.

Etiology.—Primarily it is due to nerve changes, especially those depending on locomotor ataxy. Secondary local changes result from septic invasion.

Treatment.—Of little avail. If locomotor ataxy be present, the blood should be tested by Wassermann's method for syphilis; and should the result be positive, a course of mercury and iodide of potassium should be administered, preferably after the patient has been treated by salvarsan (Ehrlich's "606"), either intravenously or intramuscularly. Personally the author prefers the intramuscular method as the safer, and he has found 1 c.c. of "Joha" answer every purpose, while it does not give rise to the pain liable to follow the injection of 10 c.c. of an alkaline solution of the drug. Galvanism is sometimes useful. Scraping with a sharp spoon may help.

Prognosis.—Treatment is unsatisfactory, and amputation may become necessary in the long-run.

CLASS III

COMMON INFLAMMATORY DERMATOSES

1. Furuncule.

(a) Boils.

Synonyms.—Furunculosis ; Furuncle ; Fr., Clou, Furoncle ; Ger., Blutschwär.

Definition.—A specific inflammatory infection of the hair-follicles or sweat glands which forms a deep-seated circumscribed pustular swelling of the skin with a conical elevation.

Symptoms.—The boil begins as a painful throbbing papule or pustule, which suppurates, and in a week or more expels a small central slough or " core." Boils are usually multiple, and often occur in crops, due to local infection, when the condition is known as " furunculosis." The favourite sites are the nape of the neck, buttocks, and armpits, but no part of the body is free from invasion. As a rule there is no systemic disturbance.

Etiology.—Although boils may occur in apparently healthy persons, they are usually connected with some obviously lowered state of individual resisitance, such as that due to Bright's disease or diabetes. It is a golden rule always to examine the urine of patients suffering from boils or carbuncles. Boils occur in alcoholics, after severe illnesses, and in any debilitated state of health.

The initial factor of causation is the invasion of the follicles of the skin by a pus-producing organism, the *Staphylococcus*, which may be either *aureus, albus,* or *citreus.* At the same time, other pyogenic organisms may now and then be at

fault. Boils are often associated with impetigo, pustular eczema, scabies, and other suppurating lesions of the skin.

It is significant that the staphylococcus is found normally in the human skin. Further, it has been shown experimentally that it has the power of penetrating to the deeper layers of the unbroken skin, most likely along the pilosebaceous and sweat ducts. Under these circumstances, invasion would obviously be favoured by any lowering of bodily resistance. The blood-stream may become infected by absorption from local staphylomycosis, and result in abscesses, pyæmia, osteomyelitis, and so on.

Treatment—*General.*—The patient wants fresh air, good food, and wholesome surroundings, with such medicines as iron and quinine. Among remedies claimed to have a specific action are calcium sulphide (5 grains thrice daily in a pill), which must be freshly made, but it yields variable results.

Fresh brewer's yeast, one or two ounces daily, is sometimes useful. Levurine is a useful yeast preparation of French origin. Wright's vaccine has at times been useful in the author's hands. The ideal is to have a culture made from pus taken from the patient, but, as that method involves delay and expense, it is usual to employ a polyvalent vaccine (of the mixed *S. aureus, albus,* and *citreus*).

Local.—Boils may sometimes be aborted in the initial stages. This can be attempted by pulling out the central hair, and thrusting into the follicle a fine probe or a needle dipped in pure carbolic acid ; or the papule or pustule may be first incised. Sometimes Unna's carbolic acid and mercury plaster will lead to the rapid disappearance of a boil, or a drop of pure carbolic acid may be injected with a hypodermic needle. Some dermatologists paint over the part with a carbolic acid collodion (1 in 40). Hermann advocates the injection of about a litre of oxygen under the skin in the area of multiple boils or of carbuncle. Pain may be reduced by hot boracic acid compresses, and boracic acid is valuable at all stages to prevent the spread of the boils by auto-infection of the skin, which plays so important a part in the formation of crops or the generalizing of the malady. In those instances where the boils become

chronic the use of antiseptic baths is indicated, with the free use of antiseptic soaps. To prevent their recurrence in susceptible patients, the parts affected may be sponged daily with a 1 in 5,000 solution of mercuric perchloride, or painted daily with tincture of iodine. The old-fashioned poultice was a common cause of the propagation of boils.

Prognosis is good, although the disease may at times become tediously chronic.

(*b*) *Carbuncle.*

Synonyms.—Carbunculus; Ger., Brandschwar. ("Anthrax" was formerly used, but is now reserved for malignant pustule.)

Definition.—A carbuncle is an acute circumscribed necrosing inflammation (or infective gangrene) of the skin and subcutaneous tissues. It is usually single, and is characterized by a tense brawny infiltration of the tissues, and a central slough, formed by the coalescence of multiple foci, finds an exit through several small openings in the skin. It is not a common affection.

Symptomatology.—A carbuncle is practically a large boil, with the addition of a slough and of more severe local and general manifestations. It begins with a red, brawny, flattened swelling of the skin, which is usually hot, throbbing, tender, and painful. At the same time there is more or less malaise and general disturbance, with slight rise of temperature. After a period of a week or ten days the carbuncle has usually attained its full development. From the sixth to the fourteenth day the skin vesiculates at several points, and bursts, discharging a sanious pus and disclosing a characteristic greyish-yellow slough, which comes away later through the cribriform openings or through the single aperture formed by their coalescence. Healing is by granulation, and is often followed by a deep disfiguring scar. In the fully-developed carbuncle pain is often agonizing, and the systemic disturbance may be increased to any degree of septicæmia, with its attendant rigors, heart failure, fever, and nervous symptoms.

The most common sites are (in order) the nape of the neck, shoulders, face, back, abdomen, and buttocks.

Etiology.—Carbuncle is due to the infection by *Staphylococcus pyogenes aureus* of the follicles of the skin, as in boils, but the inflammation becomes perifollicular and involves the subcutaneous tissues. *Streptococci* are also sometimes present. The severity of the process is greatly modified by enfeebled local and general conditions as well as by the virulence of the particular strain of invading coccus.

Among predisposing causes are middle and advanced age, and carbuncle is commoner in men than women. It is more severe in patients who are weak and debilitated from any cause, and is frequent in Bright's disease and diabetes, in which it may prove fatal. It is apt to occur during recovery from enteric and other fevers, and in drunkards.

The most dangerous anatomical complications are those arising from the formation of septic thrombus. This risk is most marked in the head and scalp, especially in the upper lip and cheeks, owing to the free anastomosis of the veins with those of the meninges, and the formation of intracranial abscess.

The disease starts locally in the sebaceous and sweat glands and the hair follicles, which are invaded by the staphylococci. There is an acute perifollicular inflammation with thrombosis of vessels and coagulation-necrosis or septic gangrene. At a later stage the slough is cut off from the surrounding tissues by the formation of pus and granulations.

Diagnosis.—*Boils* are conical, smaller, have a single opening, are usually multiple and unattended with grave systemic disturbance.

A *sloughing gumma* is painless, and with clean-cut edges shows little inflammation.

Anthrax is known by the central black slough, surrounded by a ring of vesicles. There is little pain, but much fever.

Treatment.—In early stages an antiseptic poultice (*e.g.*, wet boracic lint under oilskin) relieves pain, but no time should be lost before resorting to surgical measures. Of these, the best is free crucial incision, or incision and scraping, with subsequent mopping out of cavity with pure carbolic acid. On the face these proceedings should be immediate and radical. On this and other situations it is a good plan to

inject pure carbolic acid, in minim doses, into and around the carbuncle (some use a 1 in 20 solution).

Bier's cupping glasses are extremely useful for hastening the separation of the sloughs. An American method is to insert a piece of caustic potash into each opening, and to leave it there for twenty minutes or so ; the cavity is then washed out with dilute acetic acid.

Wright's antistaphylococcic vaccine, administered subcutaneously, sometimes gives excellent results, and it seems likely that the treatment of the future may be on similar lines.

Internally.—Good food and alcoholic stimulants are needed, with quinine, iron, and strychnine. A smart mercurial and saline purge is useful.

Prognosis.—This depends chiefly on the age and strength of the patient, on the presence or absence of diabetes or kidney troubles, and on the situation of the carbuncle. If these be favourable, recovery may be anticipated within a few weeks.

(*c*) *Oriental Boil.*

Synonyms.—Delhi boil ; Aleppo boil ; Biskra button ; Furunculosis orientalis ; Tropical ulcer.

Definition.—A specific microbic infection of tropical climates, characterized by development of a papule, which as a rule ulcerates.

Symptoms.—The patient as a rule shows no definite constitutional symptoms. He is affected at first by a papule, which as a rule becomes pustular and forms an ulcer with sharply-cut edge. This may persist for many months, but heals eventually. It is attributed to the *Leishmania tropica*, and is probably conveyed by the bite of an insect.

Etiology.—In dum-dum fever, kala-azar, or tropica splenomegaly, certain flagellate organisms, apparently trypanosomes, have been identified, and are known as the Leishman-Donovan bodies. Organisms closely resembling these have been accurately described by J. H. Wright in connection with Delhi boil. The disease occurs on uncovered parts of the body, and is probably conveyed by flies that have previously been in contact with a specific sore. The name of *Leishmania tropica* is given to the Wright bodies.

Treatment is that of ordinary furunculosis.
Prognosis is good, but an unsightly scar may follow.

2. Dermatitis.

Definition.—Dermatitis is an inflammation of the skin due to the direct action of some more or less obvious specific thermal, chemical, or traumatic irritant, or to the indirect action of certain drugs which cause eruptions after ingestion.

NOTE.—It will be clear from the above definition that the boundary line between some forms of eczema and dermatitis is indefinable. Those who hold that eczema is always due to a catarrhal inflammation of the skin, arising without visible external cause in persons with a special predisposition towards inflammations of an eczematous type, will find it difficult to exclude the whole group of dermatoses, as set forth above, especially in the case of drug eruptions. Hardly less difficult will it be, for those who hold, with the German school, that eczema is of external origin, to exclude the dermatoses of internal origin from their classification of eczema. Many forms of dermatitis, of whatever origin, are clinically indistinguishable from eczema, and fresh discoveries may at any moment render apparent the cause of various forms of dermatitis that are now obscure. The author is inclined to include all inflammations of the skin due to obvious internal or external causes, together with the so-called "idiopathic eczemas," under the heading of "dermatitis," of which those of a marked eczema type should form a separate group. The fact appears to be that dermatitis is a symptom of manifold origin, and eczema is one form of it which custom has taught us to mark out as a thing apart. The more we know of etiology, however, the more maladies we winnow out of the eczemas. It has been well said that all eczema is dermatitis, but not all dermatitis is eczema.

L. Gaucher* says that the so-called "artificial eczemas" (eruptions of external origin) are in reality eczematous dermatoses, and not true eczemas.

* "Diseases of the Skin," English translation, C. F. Marshall, M.D. (London, Longman), 1910, p. 91.

" These eruptions disappear under simple treatment as soon as the irritant cause is removed. When the eruption persists after removal of the cause, it is because the patient has the eczematous diathesis. If this condition, depending on defective nutrition, were not present at the origin of all forms of eczema, the same irritant cause would produce the same eruption in all subjects, which is not the case."

The present writer goes farther than that, and points out that where the same irritant produces the same result in an individual the eczematous predisposition persists. Where it produces its effect for the first time, or only now and then in a series of exposures, there must be some additional controlling factor. In many cases he has found the additional determining cause to be associated with valvular disease of the heart or myocardial weakness (as in post-influenzal conditions). In other instances there is arterio-sclerosis or other disease of bloodvessels. In a long series of cases, the eczematous diathesis which Gaucher attributes to defective nutrition I refer a step farther back in causation to a defective cutaneous circulation. This form of dermatitis, in point of fact, represents the substitution of a morbid for a healthy reaction of the skin against traumatism.

Varieties and Symptoms.—The varieties of dermatitis are manifold, and may be conveniently described under the headings of *Dermatitis traumatica, Dermatitis calorica, Dermatitis venenata, Dermatitis medicamentosa,* various trade eruptions, *Blastomycosis, D. herpetiformis* and *D. papillaris capilitii.*

The **Symptoms** are those of inflammation, redness, heat, swelling, and pain. The process may be acute or chronic, and may run through all the subjective and multiform objective phases of erythema—papular, vesicular, and pustular inflammation, with secondary abscess, desquamation, induration, scarring, and so on.

(*a*) *Dermatitis Traumatica.*

This includes all forms due to mechanical injury. A simple illustration is the erythema or blister caused by badly-fitting boots or the excoriation caused by scratching.

The chronic erythematous and bronzed skin in pediculosis (vagabond's skin) affords another good example.

Dermaiitis calorica results from either heat or cold.

FIG. 3.—CHRONIC SPREADING DERMATITIS OF FIRST THREE FINGERS : EXTREMELY CHRONIC, SUPERFICIAL, AND PROGRESSIVE, SOMEWHAT RESEMBLING A SUPERFICIAL FORM OF ULERYTHEMA OR DERMATITIS REPENS.

One of a series of similar cases associated with valvular disease of the heart. In some of these cases a history of traumatism was obtained.

(*a*) *Dermatitis combustionis* (burn), from exposure to radiant heat.

Erythema ab igne varies from a transient redness of the skin to vesiculation, gangrene, and charring of tissue. The classical division of burns into four degrees is that of—

1. Simple erythema.
2. Vesication.
3. Destruction of cutis vera.
4. Charring of tissue to bone and deep organs.

Burns are sufficiently described in general works upon surgery, and need not be dwelt upon in detail here. The chief points to be borne in mind with regard to burns involving the true skin are that the first danger to life is due to pain and shock, and later is in direct relation to the area of the skin surface involved (one-half or more means almost certain death) ; that there is risk of secondary septic absorption ; that ulcers of the duodenum are for some obscure reason not infrequently concomitant ; and that the scars are apt to be adherent and to develop keloid, giving rise to disfiguring and disabling contractions.

Scalds come under much the same description.

Erythema solare (sun dermatitis) follows exposure to the sun. Sunburn varies from slight redness and smarting, with desquamation a few days later, to severe blistering. The traumatic element is not the heat rays, as formerly supposed, but the chemical or actinic rays of the solar spectrum—the violet and ultraviolet rays. Gaucher says that is why the affection is more common in the spring and at sunrise, because the sunlight at these times is richer in these particular rays.

A special form of sun eruption consists of a crop of vesicles, chiefly in children, upon the face, neck, backs of hands, and sometimes the feet. The vesicles dry up or become umbilicated or crusted, and leave permanent scars. The disease has been named "hydroa vacciniforme of Bazin" and the "summer eruption of Hutchinson."

Electric burns result from various forms of electrical energy. They have been ascribed to arc lamps and other sources of light. The one which concerns us most, however, is the X-ray dermatitis following exposure to focus-tube radiation.

The X-ray burn may be shown by a mere fugitive erythema or by any degree up to deep sloughing. It rapidly affects hair, which falls out, and if the stimulation has been severe permanent baldness follows. The nails are early affected, and in chronic cases they are stunted and irregular in a way suggesting a severe trophoneurosis. The chronic changes are usually of an indurated character, with severe sensory irritation and pain. They are sometimes delayed for years, especi-

ally when tetangiectatic or malignant. There is a peculiar tendency to the formation of pigmented spots and horny papillomata. The latter are extremely prone to undergo epitheliomatous changes, and the lives of not a few operators have been lost in that way.

(*b*) *Dermatitis congelationis*, or cold erythema, may appear as erythema pernio, or chilblains, chronic itching and burning purplish patches affecting commonly the hands and feet, sometimes the ears, in cold weather. Those attacked are usually anæmic, and have a feeble or "chilblain" circulation (Hutchinson). Exposure to cold of greater intensity leads to frostbite or gangrene, usually of the nose, ears, or extremities. From my own point of view I regard chilblains as the essential product of a defective circulation. The traumatic agency is cold, the reaction against which is permanent instead of fleeting, as in a healthy skin. In a number of patients afflicted with chilblains, cardiac and vascular diseases will be found Sometimes a chilblain lasts through the summer, thereby pointing to a more permanent loss of normal circulatory reaction.

Treatment.—The general line of treatment, after removal of the cause, is that of sedative and cooling ointments, lotions, and powders. Chronic conditions may be treated as chronic eczema (which see).

Burns and Scalds.—The immediate pain may be eased in a remarkable way by soaking the parts in a weak solution of carbonate of soda.* It may also be advisable to paint over the surface with a 10 per cent. solution of cocaine before applying the classical remedy—carron-oil, a mixture of equal parts of olive-oil and lime-water. The addition of carbolic acid is sometimes recommended, but it is unsafe, both because of its absorbability, with the risk of carbolic acid poisoning, and because of its necrotic action on the epithelium. If the carron-oil be sterilized, there is little need of antiseptics ; but if such be required, there are various safe preparations, such as the glycerine of boracic acid or boroglyceride. The carron - oil

* Washing soda (carbonate) must be used, as the ordinary baking soda (bicarbonate) is useless for the purpose.

should be applied thickly, and covered in with a thin layer of cotton-wool, over which is placed oilsilk or other impermeable tissue. The germs in the skin are destroyed by heat in the first place, and the aim of treatment should be to keep the part aseptic; many surgeons, therefore, condemn oily applications. Probably the safest application is a compress of saturated boracic acid solution.

In deeper burns, blebs should be punctured and antiseptic drugs applied. Hebra's continuous water-bath is excellent where it can be applied.

Late complications, such as contractions, require surgical treatment, while keloid may be treated with electrolysis or the use of fibrolysin externally and internally.

X-ray burns can be treated only on general principles. Some individuals are more predisposed to attack than others. It is certainly advisable to destroy all warty growths in their earliest stage, either by free excision or by carbonic acid snow, a pencil of that substance being pressed firmly on the papilloma for thirty or forty seconds according to size. Should ulceration occur, prompt and free removal, as in other epitheliomatous invasions, is the only proper treatment. Eddowes recommends subcutaneous section of the nerves supplying the part.

In frostbite, circulation may be restored on the white and numbed parts by friction with snow. Warmth should never be applied.

(*b*) *Dermatitis Venenata.*

There are many vegetable irritants, other than the parasitic fungi, coarse and microscopic, which give rise to dermatitis. These are included with various caustic chemical and toxic agents which produce contact dermatitis.

Plant dermatitis is far more prevalent than is usually suspected. In our own country a common form is that produced by *Primula obconica* amongst gardeners and others who come in contact with it. Some years ago the author reported a case in which freshly-cut angelica (used by confectioners as a sweetmeat) produced a rash on the arms of the cook who gathered it. Another eruption of the kind investigated by the author is that affecting the lily-pickers of the Scilly

Islands. It was found that some persons are extremely susceptible, but others escape altogether, and that different species of narcissi and daffodils vary much in virulence. In this case it was impossible to determine whether the irritant was of a biological or a chemical origin. The author also found that persons handling bulbs, more especially tulips, in the bulb trade, were subject to a corresponding dermatitis. The irritant therefore must presumably exist in the outer scales of the bulb.* In America the two most common plants of this kind are the poison ivy (*Rhus toxicodendron*) and poison sumach (*Rhus venenata*). The irritant has been ascribed in these cases to toxicodendric acid.

The dermatitis takes the form of an intense erythema of papular, vesicular, or pustular form. It may lapse into a chronic eczematous condition. Nettles set up an urticaria, and convey the irritant by means of sharp-pointed hairs.

Various drugs applied externally to the skin in the form of soaps, dyes, and medicaments, cause dermatitis. Amongst them may be mentioned arnica, formalin, carbolic acid, pitch. An interesting trade irritant is African boxwood. The author had one case in which the fumes of osmium set up an intense dermatitis, together with conjunctivitis, in a workman. Aniline (arsenical) dyes sometimes cause scaly, ulcerated lesions, when brought in contact with the skin, as in gloves or stockings.

I have reason to suppose that in a large number of instances the susceptibility of the individual depends on a predisposing defect of the circulation, which is commonly of cardiac origin.

Diagnosis.—The distribution of plant dermatitis is somewhat distinctive. It attacks hands and face, and often the genitalia. It is usually of a more generally vesicular type than eczema. A history of exposure is of value. In some of the less common irritants cases are no doubt often overlooked.

Treatment.—This is on the usual line of soothing acutely inflamed conditions with lotions and powders. Among others,

* The author has since investigated the case of four persons affected by the rash in Jersey, and it is significant that they all suffered from valvular disease of the heart.

the old-fashioned lead and opium lotion may be mentioned, or calamine and boracic acid (1 drachm of each) with 4 drachms of glycerine to 8 ounces of rose-water. Sometimes dilute black wash gives great relief.

Prognosis.—This is in most cases favourable for early recovery. At times, however, the condition may become generalized or lapse into chronic eczema, and especially where the circulation is defective.

(*c*) *Drug Eruptions* (*Dermatitis Medicamentorum*).

The possibility of an eruption being due to a drug should never be absent from the mind of the practitioner, who may thereby be saved from various awkward predicaments. For instance, a copaiba rash has been often mistaken for measles, and iodide rash for acne. The administration may be difficult to trace. A localized bullous rash, for instance, may be due to antipyrin, which may have been taken in a "headache powder." Indeed, the dermatologist will often find it useful to have at hand for reference the analyses of quack remedies published in "Secret Remedies" by the British Medical Association.

The eruptions caused by drugs may be of an erythematous, papular, vesicular, bullous, urticarial, or other type. In fact, a striking feature is their multiformity, although in a few a single type predominates.

Idiosyncrasy is marked in these eruptions. Another point is renal inadequacy. The latter observation suggests that the skin is attempting to carry off vicariously some of the irritant drugs that would otherwise be eliminated through the kidney. That indeed appears to be the case, and the author has explained fully elsewhere* that, in almost all cases where the skin is inflamed by a drug taken into the system, other channels of excretory exit are apt to be similarly affected, so that we find bronchitis, gastritis, diarrhœa, albuminuria and so on, alternating with dermatitis. In some gouty subjects, eczema, bronchitis, and diarrhœa seem to play alternating parts in the elimination of some irritant. For

* "Excretory Irritation," *op. cit.*

the gouty poison substitute a drug—say iodine—and we find a striking analogy. The drug is excreted through the nasal mucous membrane, causing coryza and a metallic taste in the mouth; through the alimentary canal, giving rise to nausea and griping; through the skin, causing a papular or nodular rash. In this case the iodine has actually been detected in the skin lesion, which the author many years ago advanced as good evidence of the direct action of the irritant upon the cutaneous excretory organ. The drug eruption is in such a case purely symptomatic of the excretion of an irritant circulating in the blood. In other cases it is likely that nerves are more or less directly concerned in the result. It is worthy of note, however, that most of the drugs that cause eruptions when administered internally have also an irritant effect when applied to the skin externally. Finally, as a clinching argument to the general law of excretory irritation, which has here been sketched in barest outline, nearly all such drugs, when introduced experimentally in sufficient doses into lower animals, give rise to renal inflammation, albuminuria, dermatitis, and so on.

Some of the commoner drug eruptions will now be briefly described:

Arsenic may cause an erythematous, papular, vesicular, or erysipelatoid, but rarely pustular, rash. It may set up keratosis of palms and soles, and epithelioma may develop in the thickened skin. Sometimes diffuse pigmentation follows, especially when bromides have been given at the same time. Yellowish or olive-brown pustules may develop anywhere on the body, especially where there is pressure, as at the waist. There may be redness of conjunctivæ and gastric irritation.

Antipyrin and other coal-tar preparations are common causes of rash, which may be scarlatiniform or more often itching erythematous patches, or sometimes even in the form of bullæ. This drug is contained in many patent medicines.

Bromine causes papular and pustular eruptions resembling acne, especially in children, in whom they are apt to produce papillomatous growths. The breath often has an unpleasant odour. At times bromides cause extensive hæmorrhages, and

the author met with one case in which blood was coming from stomach, gums, lungs, and even from a small papillomatous growth on the neck which simulated epithelioma. On leaving off the bromides the hæmorrhages ceased, and the growth disappeared from the neck, but the patient died some months later of cerebral convulsions.

Mercury.—Externally mercury is apt to cause erythematous and vesicular rashes, which may sometimes assume pustular and other more severe forms. Internally mercury now and then causes rashes of an erythematous or papular

Fig. 4.—Bromide Eruption in an Infant.
(Dr. Norman Meachen's case.)

type. Sometimes they are of furuncular or ulcerative type. The signs of mercurialism are usually present. Mercury is an ingredient in so-called "teething powders," in various preparations for the skin and hair, and in other patent medicines, and the cause of a rash of obscure origin may lie in that direction. The author has known an eruption to be due to prolonged administration to a patient of a "hospital" pill containing calomel.

Opium and its preparations in susceptible persons cause a rash chiefly on face, neck, and flexor surfaces, but sometimes over the whole body. It is commonly followed by desqua-

mation, and is of erythematous, scarlatinal, or measles type, but may be urticarial. It is commonly attended by violent itching, and there may be pin-point pupils.

Quinine.—This is among the commoner drug eruptions. It most frequently occurs in the form of a scarlatiniform erythema, followed by desquamation; or it may appear as wheals, or rarely as a vesicular, bullous, or gangrenous form. The eruption is eventually polymorphic. It may be mistaken for scarlatina, especially as it involves the mucous membrane of the pharynx, and at times is accompanied by a slight rise of temperature.

Salicylic acid and *salicylate of soda* may give rise to various erythematous, vesicular, bullous, and petechial eruptions. At times the rash simulates scarlatina closely.

Tar and *turpentine* given internally cause at times (rarely) rashes of an urticarial, papular, or vesicular nature.

It should be noted that many other drugs cause rashes in susceptible persons. Amongst them may be mentioned *antimony, atropine, boric acid, cannabis indica, cantharides, ergot, lead, nux vomica, strychnine, tar,* and *stramonium.*

It is well to bear in mind that antifebrin, phenacetin, and antipyrin, sold extensively in secret preparation in "headache" and other powders, may all give rise to rashes. Many so-called "blood-purifiers" contain iodides, and are a common cause of the skin troubles they profess to cure. Iodide rash from that cause is common enough in dermatological practice. In children "teething powders" should always be suspected, or "soothing" mixtures containing opiates.

The **Treatment** of drug eruptions consists in stopping the administration of the implicated drug. The rash requires soothing applications. Elimination may be helped by hot baths, diuretics, and saline aperients.

(*d*) *Dermatitis Factitia* (*Feigned Eruption*).

An eruption may be produced by artificial means either to excite pity or to escape some unpleasant duty. It is met with most commonly in hysterical girls or among beggars, army and other malingerers, and lunatics. The author has known

a man produce ulcers by binding a copper coin on his leg for the purpose of becoming a pauper hospital inmate during the winter months. The points in diagnosis are the occurrence of the rash in parts most readily reached by the operator (*e.g.*, limbs and front of trunk or left side) ; the absence of eruption on inaccessible parts of the body ; want of symmetry and lack of resemblance to familiar eruptions. Common agents in the production of this dermatitis are mustard, turpentine, carbolic acid, cantharides, and urine. The medical man should bear the possibility of imposture in mind, especially under certain circumstances hinted at above.

(*e*) *Dermatitis Gangrenosa* (*Sphaceloderma*).

The occurrence of gangrenous patches is in rare instances of idiopathic origin in hysterical subjects; more commonly it follows some destructive local agent, as a strong acid or caustic. Sloughs are specially apt to occur in diabetic subjects, and in emaciated persons confined to bed (bedsore), or who suffer from cerebral or spinal disease.

(*f*) *Dermatitis Blastomycetica.*

Under the term "blastomycosis" is included a group of skin affections due to invasion by the fungi called "*blastomycetes.*" In 1894 Gilchrist* described cases of cutaneous blastomycosis, but Troisier and Achalina a year previously described a case of sore throat caused by a yeast fungus. There are at least two varieties, one of which has been named by Gaucher "American blastomycosis, or oïdiomycosis," which is due to an oïdium-like fungus.† The skin may be involved primarily or as a secondary extension from a vesical infection. The other group is spoken of by Gaucher as "true blastomycosis, or saccharomycosis." It is caused by a saccharomyces or yeast fungus.

American blastomycosis occurs as multiple lesions chiefly on the face and back of hands, but also on other parts of the body. They are hard red papules, which become pustular.

* Johns Hopkins Hospital Report, 1896, i. 269.

† *Op. cit.*, p. 366.

They grow slowly, and in six months may increase a couple of inches across. There are a number of yellow points—miliary abscesses—occurring in the corium and epidermis, and in them the organism is found. The disease may last five or ten years and undergo spontaneous cure, or may involve the viscera, especially the lung, and prove fatal.

Pathogenically there is papillary hypertrophy and great epithelial proliferation. In the miliary abscesses the parasitic bodies are found, usually in scanty numbers, either free or within giant cells. They are round or oval in shape, with a double outline, from 15 to 30 μ in size, and a nucleated central protoplasm. The fungi known as *Blastomycetes, saccharomycetes* or yeasts are characterized chiefly by their method of cell division by budding, although under certain conditions most of them, if not all, are capable of spore formation. They may enclose round bodies, probably spores, or may show buds. In the majority of cases the disease is extremely chronic, but the lymphatic glands are not affected.

Diagnosis.—The disease closely simulates verrucous tuberculosis and some vegetating syphiloderms; the distinction can only be made by microscopical examination. In cases of lung invasion by the blastomycetes, tuberculosis is closely simulated. There are various forms of the disease. On the Pacific coast a number of cases have been reported in which the organism appeared in the tissues in thread-like form, although it budded in cultures. It was much more fatal than Gilchrist's Chicago cases. Cultures are difficult to obtain, but, once grown, can be maintained in all ordinary laboratory media.

Treatment.—Radical destruction of affected tissue, followed by antiseptic and parasiticide applications. Iodide of potassium in large doses (20 grains) is sometimes effectual.

True Blastomycosis, or Saccharomycosis.

This appears to occur in at least two forms—namely, that of tumours and that of abscesses. In the tumours the epithelium is stretched over a mass of parasitic growth. In the abscess, ulcers and abscesses form multiple foci. The

saccharomycetes are abundant, and there is a connective-tissue reaction, shown by plasmodium and giant cell transformation.

For a full account the reader had better consult the English translation of Gaucher (*loc. cit.*) or Gaucher's original work.

(g) *Dermatitis Herpetiformis.*

Synonyms.—Hydroa herpetiforme (T. Fox); Pruriginous pemphigus; Pemphigus pruriginosus (Hardy); Herpes gestationis (Bulkeley); Herpes circinatus bullosus (Wilson); Hydroa vacciniforme (Bazin); Duhring's disease.

(Various affections of the skin characterized by intense itching and burning and pemphigoid eruptions have been brought together under the heading of *dermatitis herpetiformis* by Duhring. The malady was first described by Tilbury Fox.)

Definition.—A rare disease characterized by intense painful itching and burning, by its multiformity of lesion, its exhausting chronic course and tendency to recur after remissions, which may be of several years' duration; as a rule it is non-fatal, but incurable.

Symptomatology.—The attack is usually ushered in by pain and itching, often of a severe kind, as a rule attended with slight constitutional symptoms. Locally the eruption usually begins on the hands and arms, and extends to the rest of the body surface. It is bilateral, symmetrical, of a multiform nature, and may consist of erythema, macules, papules, vesicles, pustules, bullæ, and wheals. The eruption may consist chiefly of one single type of lesion, or it may show the whole range of them mixed together in an extraordinary fashion, no one single type predominating. Another characteristic is the herpetiform grouping, the vesicles especially being clustered on a red base resembling a patch of *herpes zoster*.

Varieties.—Erythematous patches appearing in successive crops very much like those of erythema multiforme, which is also prone to recur, but shows little or no subjective symptoms. This type may persist or gradually develop other forms.

Vesicles.—The commonest (single) type: the vesicles are from the size of a pin-head to that of a pea, in groups on an

erythematous base. They are tense, with little tendency to break, and are filled with a clear fluid that later becomes cloudy. Bullæ are formed by the coalescence of vesicles. Both are inflammatory, and may rupture spontaneously.

Pustules.—This type is rare.

Papules, also rare, occur in groups, which change later into vesicles.

Mixed Type.—In this form all the lesions are present in all stages of development and evolution. Secondary changes occur from pus inoculation and scratching, and pigmentations and scarring from previous attacks are often present.

Etiology and Pathology.—The exact causation is obscure. All ages and both sexes are prone to attack. Neurosis is closely concerned—at any rate as a predisposing, if not a determining, factor. "Mental shock," fright, pregnancy, uræmia, and toxic conditions, have been mentioned as causes. It seems improbable that any specific organism is at fault, for none have been cultivated from early vesicles. Eosinophilia has been considered by some as the cause, as eosinophile corpuscles have been found in excess both in the blood and in the fluid of vesicles and bullæ. A similar blood-condition, however, is common to a number of dermatoses.

Diagnosis.—The five cardinal characters are—

1. Multiformity.
2. Grouping.
3. Itching.
4. Chronicity.
5. Relapses.

From vesicular eczema it is distinguished by the larger vesicles, which are grouped and do not tend to rupture. From erythema multiforme it differs in its intense itching and grouped lesions. From pemphigus it is marked off by the multiformity of its lesions, by the longer course, and by the greater intensity of the inflammatory process.

Pathologically there is an intense inflammation of the papillæ, with œdema of the rete, leading to formation of vesicles and bullæ, which are roofed in by the epidermis.

Treatment.—Attention to general health; milk diet. Arsenic has been recommended, also tonics such as iron, quinine, and nux vomica. Locally, sedative lotions, or an emulsion of equal parts of carbolized oil and lime-water; some advocate a mild sulphur ointment (Duhring), and others an ointment containing 5 to 15 per cent. of ichthyol. Phenacetin and antipyrin have proved useful in checking the pain.

Prognosis.—This is not favourable. The disease may disappear after many years' duration, but it is as a rule incurable. Severe cases may sometimes lead to a fatal termination through sheer exhaustion of mind and body.

(*h*) *Dermatitis Papillaris Capilitii.*

Synonyms.—Acne keloid; Dermatitis papillomatosa capilitii; Framboesia mycosis; Framboesoides; Sycosis capitis; Fr., Acné kéloidique.

Definition.—A rare malady commencing in the hair follicles at the nape of the neck, resulting in a keloidal mass that extends upwards, sometimes as far as the occiput.

Symptoms.—The disease begins as small firm papules of acne pilaris. Pustulation follows, with folliculitis and perifolliculitis. There is granular overgrowth, causing irregular or framboesiform nodules (framboesia = raspberry). There is often offensive discharge, with abscesses and ulcers that bleed readily. Some of the hair-follicles are destroyed, and hairs apt to be gathered into clusters. Finally, there is connective-tissue formation, with dense firm tumour growths, which may extend to the occiput.

Etiology.—Both sexes are affected; no definite cause is known. It is suggested (Hutchinson) that the follicles at the nape of the neck are larger and more easily invaded, as they are vestiges of a hairy overgrowth (mane region) in certain lower mammalia.

Pathology.—The process probably begins by the invasion of micro-organisms, as in ordinary acne, but runs a different course, possibly because of anatomical and individual peculiarities.

Treatment is not satisfactory. Pustules should be evacu-

ated, and abscesses scraped and mopped out with pure carbolic acid. Polyvalent acne vaccine may be tried. Continuous antiseptic lotions are indicated. Radio-therapy may be effectual. Some French surgeons use linear scarification followed by high-frequency current. Electrolysis can be tried.

Prognosis should be guarded.

3. Erysipelas.

Synonyms. — St. Anthony's fire ; Rose ; Fr., La rose, Feu sacré ; Ger., Rothlauf.

Definition.—Erysipelas is an acute specific inflammatory disease of the skin and subcutaneous tissues, due to a definite pathogenic micro-organism, characterized by redness, heat, swelling, a sharply-defined spreading border, and moderate fever.

Symptomatology. — After a period of uneasiness, lasting from a few hours to a day or two, erysipelas starts with one or more patches at the site of infection, which quickly spread into an angry, scarlet, glistening, sharply-defined area with irregular spreading edges. The affected part is usually both painful and tender. The redness may be faint and transitory, with little fever or general disturbance (the so-called " white erysipelas ") ; or the process may be attended with great swelling, especially in the lax tissues of the face and scrotum, and may invade the mucous membranes of the nose, mouth, or vagina, while there is sharp fever, rising to 103° or 104° F. In still severer cases there may be formation of vesicles, blebs, and pustules, while the deeper tissues are involved with the formation of abscesses and the general constitutional effects of a toxæmia. When the redness fades away and the disease subsides, there is more or less non-scarring desquamation.

Etiology. — Erysipelas results from infection with the *Streptococcus erysipelatis* of Fehleisen. The organism may gain entrance through a surgical wound or through any other breach of the skin surface. Its most common situation is on the face and scalp, where it probably often originates in some

slight scratch or abrasion. Erysipelas has a curious tendency to recurrence, sometimes after many years of immunity, especially in feeble and alcoholic persons. It lasts from a few days to several weeks. Among the chief predisposing causes are general debility and alcoholism, diabetes and chronic Bright's disease. It is specially apt to attack women after childbirth.

Traumatic erysipelas is the name given to attacks where there is an obvious point of entrance for the streptococcus, *idiopathic erysipelas* being reserved for cases apparently of spontaneous origin.

Pathology.—Erysipelas consists of an infective inflammation of the corium and subcutaneous tissues, caused by the streptococcus above-mentioned, which invades the lymph spaces at the spreading margin. The fever and other constitutional symptoms are due to the toxin elaborated by the specific micro-organism ; while suppuration is caused or aided by a complicating infection with pyogenic bacteria. Septic or malignant endocarditis, meningitis, acute nephritis, and infection in various organs, may follow.

Diagnosis.—This is easy when we consider the sudden invasion, the fever, the sharply-defined, tender spreading margin of redness and deep swelling. *Eczema* has neither the sharply-defined edge nor the fever, and itches much more.

Prognosis.—This is good in all cases but those occurring in very feeble or aged persons. The malady is more dangerous on the face and head, owing to the risk of cerebral troubles. In severe attacks the danger of internal complications should be borne in mind.

Treatment.—Tinctura ferri perchloridi, 30 to 40 minims every three or four hours, was formerly held to be specific in erysipelas, and it certainly yields good results. Temperature may be reduced by quinine. An antistreptococcic serum, 15 to 20 centimetres injected once or twice daily, is sometimes rapidly curative. In all cases an abundance of nourishing food is needed, and small quantities of port wine or brandy will be found beneficial.

The local treatment is of great importance. Ichthyol (as

a 20 to 50 per cent. ointment or as 1 in 5 glycerine paint) is useful. The writer has long abandoned other methods in favour of painting with collodion, to which 5 per cent. pure carbolic acid has been added. By this means extension may in most cases be arrested. When suppuration occurs, the abscesses must be washed out frequently with antiseptic lotions.

4. Eczema.

Synonyms.—Scald ; Moist or humid tetter ; Heat eruption ; Salt rheum ; Fr., Eczème, Dartre humide or vivre ; Ger., Ekzem, Flechte, Salzfluss, etc.

Definition.—A catarrhal inflammation of the skin, acute or chronic, characterized by erythema, vesicles, papules, pustules, desquamation, and intense itching, with secondary rhagades and thickening. It is a multiform eruption, with weeping serous discharge which stiffens linen in its typical form. Exudation (sometimes within the epidermis) is essential at one stage or other of its progress. It is a malady closely related to individual predisposition, and may be regarded as symptomatic of a skin irritant, which some writers attribute exclusively to external, and others (the French) to an internal, origin. The more probable explanation is that both agencies may be concerned in varying degree.

Symptomatology.—Acute eczema presents to the eye the classical signs of inflammation—redness, heat, swelling, and " dolor," which is not necessarily pain in our present use of the term. The redness is diffuse and fades on pressure (erythema), and is accompanied by some swelling and by intense itching. It is well seen on the face, where the exudation may be confined by the epidermis, and there is no visible discharge. More commonly, however, the erythema is followed by a crop of small vesicles, which quickly burst, and give vent to a clear serous fluid that stiffens linen. The discharge may be invaded by micro-organisms and become purulent, or it may dry up into yellowish (honey-like) crusts. After a time the affected surface throws off a fine scaly desquamation, or it may pass into a chronic stage, attended by thickening, and in places where the skin is already thick

and hard, as in the palms and soles, movement may give rise to painful cracks and fissures. The whole eczematous process is apt to be complicated by micro-organisms of various kinds, so that we may have pustules, much purulent discharge, boils, and even abscesses, with septic absorption, and perhaps mild toxæmia. Some observers attribute eczema entirely to microbial action, but it seems that the primary vesicles are usually, if not always, sterile. At the same time one should bear in mind the possibility of the presence of ultramicroscopic organisms, which have been alluded to elsewhere (p. 10). In any case, it will be evident that eczema, which may present itself in any of the above-mentioned stages or combinations of stages, simple or complicated, may be described emphatically as a polymorphic or protean disease.

In *chronic eczema* the skin is indurated, and the itching more intense than in the acute form. Sometimes the stage of vesication or exudation is short, and desquamation begins early, so that the malady may be spoken of as chronic almost from the outset. Chronic eczema is apt to have repeated recurrences, and sometimes there are no crusts. The skin may be simply dry, indurated, rough, papular, exfoliative, and intensely irritating.

The various phases of the disease are designated by the terms *eczema rubrum* (*madidans*), *papulatum*, *squamosum*, *fissum*, *verrucosum*, and *sclerosum*. Pigmentation may follow the disease, especially upon the lower limbs, but not scarring.

Eczema, as a matter of fact, is an elastic term that may be made to include, often erroneously so, a great number of different conditions, especially in the dry and chronic forms. Every now and then a more or less sharply defined pathological grouping is detected, as in the case of seborrhœa, sorted out from what Norman Walker has called "the rubbish-heap of eczema." The more one sees of skin diseases, the less eczema one finds. At the same time it is one of the commonest of skin affections.

Varieties.—There are two convenient ways of classifying the various forms of eczema for purposes of description. One is by dividing it into types according to its predominant lesion,

and the other according to its site. It should be borne in mind, however, that all, or nearly all, of the lesions may be seen on the same patient, and that in a typical chronic multiform case careful examination will almost always reveal a patch of moist eczema.

Eczema Erythematosum.—This form is characterized by an erythematous macule merging gradually at its borders into healthy skin. There is intense itching and burning in the affected area, which is dry and usually situated on the face.

Eczema Vesiculosum.—After a preliminary stage of itching and heat, an erythematous punctate redness appears, and this soon becomes studded with minute vesicles, which often coalesce into patches. The skin is more or less swollen, and bright red in colour (*eczema rubrum acutum*). This stage rarely lasts long, and usually passes into the further crusted or desquamative stages, or becomes complicated by the invasion of pyogenic organisms. Sometimes the vesicles are abortive, the surface epidermis is shed, and the typical acute eczematous surface—red, weeping, and crusted—ensues (*eczema madidans*).

Eczema Pustulosum.—The vesicles may become pustules almost at once, or, according to some dermatologists, are pustular from the first. Children are especially prone to the pustular forms of eczema, more especially on the face and scalp, especially when they are badly fed or in poor health. The pustules dry up into greenish-yellow scabs. This form may be called "impetiginous eczema." It is closely allied to *impetigo contagiosa.* As a rule pustular eczema does not itch so much as the ordinary form, and it can be more readily cured.

Eczema Papulatum.—In this form the disease begins as red, itching papules, varying in size from a pin-head to a split pea, and these may remain discrete or run together into patches. In some cases each papule is surmounted by a small vesicle, which may be seen with a lens. Patches of discrete papules may be seen on the extensor surface of the limbs, or they may run together into red, desquamating, imperfectly scaled patches. Sometimes they resemble psoriasis rather closely,

but the scales are less silvery, they itch, and there is a history of moisture (*eczema psoriasiforme*). The small blood-crust at the top of the papule, due to scratching, is characteristic of papular eczema.

Eczema Nummulare.—Extremely chronic, red, well-defined scaly patches on the trunk and limbs, the size of a florin or larger. They are possibly, in many cases, of seborrhœic origin. On the face this variety is known as "discoid," and it has been shown to be due to a staphylococcus.

Eczema Fissum may occur along with ordinary eczema or as an independent affection in which fissures appear and cross each other at angles, enclosing areas of healthy skin. These cracks, or "chaps," are painful and rebellious to treatment. They affect the lower limbs and armpits, and are extremely troublesome about the lips and anus. They dip down into the corium, and may be complicated with various coccic organisms.

Eczema Verrucosum.—In this form chronic patches, often in the legs, become rough and warty, owing to proliferation of the cells of the epidermis.

Eczema Sclerosum.—A term sometimes applied to a form in which the skin becomes extremely indurated. It is rarely seen, except on the palms or soles.

In certain regions of the body accessible to the hands a peculiar harsh, dry, and thickened condition of the skin is sometimes seen, known as "lichenification" (Brocq).

Eczema Seborrhoicum.—Many dermatologists describe this condition as a separate malady under the name of "seborrhœic dermatitis." It seems tolerably clear, however, that an undoubted eczema may develop upon a seborrhœic dermatitis, the seborrhœa being, in fact, a predisposing cause.

Varieties according to Distribution.—*Eczema of the scalp* is usually of the seborrhœic kind—that is, developed in a seborrhœic subject. The scalp is of a dull red colour, there is fine scaling (dandruff), the hair is dull and tends to fall out by the roots, there is almost always an eczematous condition behind the ears.

The scalp may also become the seat of acute eczema, with

a yellowish discharge that glues the hair together, and often results from the presence of pediculi. In children the discharge often becomes purulent, and the glands of the nape of the neck may suppurate.

On the face eczema is most often of a seborrhœic form.

On the eyelids eczema produces a distressing train of symptoms. The lids become red, swollen, and sometimes everted. The eczematous process involves the lashes (blepharitis), and often the conjunctiva. The cornea may be involved, as well as the canaliculi and lacrymal sac, causing epiphora. The swollen lids may be attended with a painful crack at the outer canthus.

Eczema of the nostrils, with swollen mucous membrane, discharge, and formation of crusts, is not uncommon.

Eczema of the lips may be set up by discharge from the nose. The upper lip may be red, scaly, and swollen, but sometimes both lips are affected. The vermilion border of the lips is sometimes attacked. It becomes dry, wrinkled, and cracked. The process may involve the mucous lining of the cheeks or the tongue.

Eczema of the chin is often confused with sycosis, from which it differs, however, in several important particulars, notably the absence of nodules, the fixity of the hairs, and the tendency to travel outside the hairy parts.

Eczema of the breast occurs chiefly in women during pregnancy and lactation, usually in rounded moist patches or as painful cracks round the nipple. It is apt to be mistaken for scabies, which is prone to attack the same situation. Paget's disease of the nipple is distinguished from eczema by its attacking one breast only in women between forty and sixty years of age, by its dark red granular surface, and absence of fissures.

Eczema of the hands most commonly attacks the dorsum, and is symmetrical. It frequently arises from occupation, scabies, or exposure to the sun. The nails are often involved. At first they are pitted, and later are split and furrowed. The palms become thickened and scaly, and develop deep and

painful cracks. A similar condition occurs in the soles, and in the feet an interdigital desquamative form is common.

Eczema of the genitals in both sexes is often an extremely troublesome and obstinate complaint. The skin becomes red, swollen, and intensely irritable. The rash spreads to neighbouring parts, and may be attended with a moist offensive discharge. The patient may be prevented from walking, and become worn out by the constant suffering. In the region of the anus fissure often forms a most distressing feature. Eczema of this part often accompanies hæmorrhoids, and is frequently induced by the irritation of saccharine urine, as in diabetics.

Eczema of the legs is often deeper in colour and more persistent than that in other parts of the body. It is apt to be complicated with swelling, infiltration, hypertrophy, thickening, or ulcers, and is constantly associated with varicose veins.

Etiology.—Eczema is a non-contagious affection that may occur at any age. It it not hereditary, although a tendency to its attacks may be handed down from parents to offspring. It is a fact that certain persons are specially liable to be attacked, a fact that points to some special constitutional factor or some anatomical peculiarity of the skin. The French dermatologists ascribe everything to the constitutional or internal factor. Hebra, on the other hand, regarded eczema as a disease of purely local origin. It seems likely that the truth lies between these extremes, and that in the majority of cases eczema is the symptomatic response of an irritant applied either from within or without in a predisposed subject.

Some English dermatologists exclude from the definition of eczema all inflammation of the skin due to definite chemical or mechanical agencies. They admit, however, that the dermatitis thus started may persist as an eczema in predisposed persons. The question is still unsettled, and meanwhile the practical difference between the eczema and the dermatitis is small. Personally I find no difficulty in accepting the French view of internal irritation as not only possible, but probable.

In 1880 I advanced the explanation of excretory irritation of the skin as an explanation of various symptomatic rashes. The blood bears to the skin an irritant, which may be in the form of a drug, bacteria or their toxins, or an autogenous poison, such as that of gout, uræmia, and so on. Excretion or attempted excretion of the irritant from the body is followed by inflammation of the excretory organs, which may affect the sudoriferous or sweat glands, or the sebaceous glands, giving rise to hyperidrosis, seborrhœa, or folliculitis, or to diffuse inflammation. In the case of iodine and bromine, administered internally, the metals have been actually detected in the skin lesions.

The skin is affected only as one of various channels of excretory outlet from the body, so that the sudden metastasis of an excretory cutaneous irritation may influence another outlet. That actually takes place in the diarrhœa, bronchitis, and so on, that sometimes alternate with attacks of eczema.

The direct inflammation of the skin glands as the result of the excretion of an irritant reduces the French view of the constitutional origin of eczema to a logical issue. Of what use is it to say that a dermatitis is due to copious sweating, unless we assume that there is some peculiar irritant which has inflamed the skin in its passage from the inside to the outside of the body ?

While the predisposing cause may exist within the body, the exciting cause may be that of many external irritations, such as strong soaps, the traumatism of heat, the irritation due to seborrhœic and other micro-organisms, and so on.

A predisposing cause is to be found in various circulatory conditions. It is a peculiar fact that eczema commonly attacks anæmic and debilitated subjects. It is often obstinate in the legs, where the circulation meets with more resistance than in the rest of the body, and this tendency is still more exaggerated by the presence of varicose veins. The author has observed a fairly constant connection between valvular disease of the heart and chronic or recurrent eczema. The same observation seems to him to be true to a lesser

extent of cardiac weakness from other causes. Thus, in eczema following influenza, the weakened myocardium is probably concerned in the result. It is easy to see how diminished capillary circulation might lower nutrition and resistance, and so permit the invasion of pathogenic micro-organisms. A somewhat similar explanation applies to the severe chronic eczema of old age, in which there is more or less failure of heart, degeneration of vessels, and anæmia, with shrinkage or obliteration of surface capillaries.

Dyspepsia and constipation are among constitutional causes, possibly by the creation of irritant toxins which are absorbed into the blood-stream and excreted by the skin. Eczema is prone to attack gouty and rheumatic persons, or those suffering from Bright's disease, anæmia, chlorosis, and especially glycosuria (genital eczema). There is also a nervous form which may be reflex (as from a carious tooth). Morris describes symmetrical patches on the extensor surfaces, appearing on previously healthy skin, and not spreading or decreasing at the periphery.

The **Exciting Causes** are manifold. External agents, such as heat or cold, strong soaps, acids or alkalies, and other chemical and physical agencies, may induce eczema in a predisposed subject, whereas in other persons they might set up a dermatitis of eczematous type, which subsides on the removal of the irritant. Certain articles of diet may induce an attack. For instance, I know one case in which a small quantity of bottled ale brings out a weeping rash within a few hours. Eczema in the form of "trade dermatitis" is common in certain trades, as among grocers (sugar) and bakers. Friction or scratching is a frequent cause. Some cases follow shock or reflex irritation, as that of dentition. Scabies, often overlooked, is an underlying cause of eczema.

Some authorities attribute certain eczemas to the direct action of micro-organisms. On the whole, however, it seems more likely that the part played by the latter is one of secondary complication. Indirectly, according to the writer's view of the excretory origin of some symptomatic eczemas, the rash may be of toxic origin, due to the irritation of a cutaneous

excretory organ by microbial products. A similar explanation applies to beer in relation to skin eruptions, and to eczema connected with dyspepsia, the irritant being in both instances absorbed from the bowel into the circulation.

The modern conception of eczema as being simply a "cutaneous reaction" to some stimulant, according to the theory advanced by Brocq, has much to commend it, and is compatible with that of "excretory irritation" already mentioned.

Pathology.—The process in the acute form is one of inflammation of the epidermis and the superficial layer of the corium, extending in chronic cases to the deeper layers of the dermis. The bloodvessels of the papillæ become dilated, and there is fluid exudation, small round-cell infiltration, and swelling. In the epidermis there is parenchymatous œdema, followed by parakeratosis or imperfect keratinization, characterized by imperfect nuclei and exfoliation. Should vesicles be formed, the roof is formed by the horny layer. The œdema may be due, according to Leloir, to dropsical degeneration of the epithelial cells, or to interstitial œdema (Unna). When the vesicles run together and an abraded surface is left, it may be compared with that which follows a superficial scald—that is to say, a moist red surface dotted with red spots, which are the tops of congested papillæ. Pustules are formed by excess of leucocytes in the vesicles, papules by proliferation of the interpapillary epithelium, whereby the papillæ are elongated and elevated (acanthosis). In *eczema rubrum* the horny layer is thrown off without the intermediate stage of vesication. In chronic eczema there is deep cell infiltration and hypertrophy of the connective tissue extending deep into the corium, with hypertrophy of the papillæ and parakeratosis.

Diagnosis.—Eczema is the commonest of skin diseases. In its typical acute form its red, moist, swollen, oozing, and crusted surface, attended with much itching, is hardly likely to be confused with any other skin affection. In its dry and chronic varieties, however, and when complicated by other conditions, its real nature may be overlooked. Multiformity is a useful guide to the diagnosis of eczema.

Scabies is perhaps the most common cause of error. As a matter of fact, it sets up secondary eczema in predisposed subjects, and this may persist indefinitely, or become generalized. It may be answerable for the persistence of lifelong eczema, even in patients of the higher ranks of society. Cases of so-called "hereditary eczema" may be in reality due to scabies. The latter malady may be distinguished by its distribution, particularly by the long greyish or blackened delicate lines on the sides of the fingers, and the rash at wrists, elbows, axillæ, between the female breasts, buttocks, feet, etc. Scabies causes intense irritation, worse when the patient is warm in bed at night, and in most cases a history of infection is obtainable.

Herpes zoster is distinguished by its grouped vesicles, which are larger than those of eczema and have a red areola; by their grouping along the course of a nerve area, in which there is severe precedent neuralgic pain; negatively by the absence of itching.

Dermatitis herpetiformis is often mistaken for eczema of the papulo-vesicular type, but the symmetrical, herpetiform grouping of the lesions in this disease, in which bullæ sometimes occur, should be sufficiently distinctive.

Psoriasis, if not in typical form, or if inflamed by treatment, may simulate squamous eczema. Sharply circumscribed patches of chronic eczema may be difficult to differentiate, but the scales are not silvery white, there is no special tendency to attack elbows and knees, and the eruption is not uniform in all parts of the body.

Erysipelas on the face sometimes resembles erythematous eczema, and cases of this type have been frequently notified as such; but it can be distinguished by its sharply-defined, spreading edge, its deep red colour, and its severe subcutaneous inflammation and swelling, with accompanying constitutional disturbances and fever.

Erythema is known by the redness of the skin fading under pressure, by the absence of moisture, itching, and infiltration.

Acne rosacea is distinguished by its predilection for the forehead, nose, and cheeks, whereas eczema spreads diffusely.

Rosacea is dry, non-irritating (or only slightly so), and is marked with dilated venules (telangiectasis).

Lichen planus may at first sight be confused with eczema, especially when the papules have run together. Careful examination, however, will show the flat, angular, umbilicated, shiny, and violaceous papules, affecting the flexor surfaces of the wrists, legs, and trunk; like eczema, they itch, but, unlike that malady, they affect the mucous membranes of the mouth. In patches of lichen planus the papules preserve their characteristics, and outlying papules are always to be found.

Dermatitis is a more acute inflammatory process than that of eczema, and is burning rather than itching. It tends to subside quickly when the cause is withdrawn. At the same time it must be remembered that the boundary line between the two conditions is a fine one, for in a sense all true eczema is a dermatitis, though in some varieties the inflammatory nature is more marked than in others. A dermatitis often merges into a true eczema in predisposed persons. Thus, exposure to the sun may set up a violent dermatitis of the face and neck, which under ordinary circumstances subsides in a week or two, but in other cases may result in an eczema lasting for months or becoming generalized.

Tinea circinata of the face in children may resemble a form of squamous eczema. It may be recognized by its tendency to form sharply-defined marginate rings, and by the presence of the ringworm fungus in the scales.

Sycosis may closely resemble the coccogenic variety of eczema of the beard. It is strictly limited to the beard and moustache region, whereas eczema may spread to the neighbouring skin. In sycosis the pustules are situated round individual hairs, which are easily extracted; in eczema the hairs remain firmly fixed.

Mycosis fungoides in its early erythematous or premycotic stages is often indistinguishable from eczema. The annular persistent patches, finally becoming hypertrophic, make the disease manifest.

Treatment.—In simple cases nothing but local remedies are needed, but in others treatment may tax all the resources of

the experienced dermatologist. In the skin we are dealing with an active organ of the body, the reaction of which is closely related to the condition of the general system.

More than that, it is apt to present individual peculiarities as regards its pathological and therapeutical processes, while the special inflammatory state known as "eczema" does not tend to spontaneous cure.

Constitutional Treatment.—The general health must be attended to. Every detail of environment, such as dress,

FIG. 5.—CHRONIC AND RECURRENT ECZEMA OF THE HANDS IN A FEMALE WITH CARDIO-VASCULAR TROUBLE.

The eczema disappeared after a course of hot-air baths. In the plate the eczema has gone from one hand, and is disappearing from the other. Only one hand was treated throughout, but the eczema on other parts of the body was cured. The disease returned some years later.

exercise, diet, sleep, clothing, and so on, may require careful study. Constipation must be relieved. In plethoric and gouty persons diet should be plain, with plenty of milk, hot water, and small allowance of meat. As a general rule, tea, coffee, and alcohol, should be avoided, as well as salt meat, pickles, pastry, curries, highly seasoned dishes of all kinds. A purge and milk diet, with rest in bed for a few days, will

sometimes work wonders in full-blooded persons. On the other hand, debilitated patients require good nourishing food. Anæmia demands treatment with iron, quinine, cod-liver-oil.

In cases where there is valvular disease of the heart, or the heart muscle is weakened from any causes, such as the result of influenza, anæmia, constipation, nervous shock, the excessive use of tea, tobacco, or alcohol, and other causes, rest in bed is imperative. The heart must be relieved, first by rest, and secondly by diet, purging, and heart tonics. At the same time the restoration of the surface circulation to a normal state must be attempted by the use of hot baths, hot water internally, and so on. In dealing with chronic or recurrent eczema, where the circulation is defective, I hold it to be an essential first step in most cases to put the patient to bed. In such cases I regard the eczema as symptomatic of the heart condition, and the cure of the eczema as a sign that the heart compensation and the normal balance of the cutaneous circulation have been restored, at any rate for the time being.

Internal Medication.—There are no specifics for eczema. Alkaline diuretics, such as potassium or sodium bicarbonate with a vegetable bitter, are often useful. The sulphocarbolate of soda in doses of 5 to 10 grains is advocated by some authorities; others recommend ichthyol (gr. i.-iii. in pill). Calcium chloride (gr. x.-xx. t.i.d.) occasionally relieves the itching. Salol (gr. v.) and other intestinal antiseptics are sometimes useful.

As regards aperients, a good standard preparation is the old-fashioned combination with iron:

℞ Mag. sulphat. - - - - - ℥vi.
Acid. sulph. aromat. - - - - ℿxxx.
Ferri sulph. - - - - - gr. vi.
Syr. aurantii - - - - - ℥ii.
Aq. destill. or aq. menth. pip. - - ad ℥vi.

Sig.: One-sixth in half a tumblerful of cold or tepid water to be taken in the morning fasting.

This mixture may also be given thrice daily with an equal quantity of water an hour or so after meals in more obstinate cases of constipation and anæmia.

The vaccine treatment of eczema has not been reduced to an exact basis. It is claimed by some enthusiasts as the treatment of the future, and such may be the case with growing knowledge and experience. It may be tried in obstinate cases with the help and guidance of an expert pathologist, but at present the prospects of success are limited.

A favourite prescription of the author's is a pill 2½ grains each of blue pill and compound rhubarb pill overnight, followed by a draught of Hunyadi Janos (large wineglassful) in the morning on an empty stomach.

Arsenic was formerly given indiscriminately in all eczematous conditions. As a matter of fact, it is likely to aggravate acute, and to be useless in chronic, forms of the malady. It should be tried cautiously in some chronic papular and scaly conditions that do not yield to other measures.

Some of the quack remedies sold for skin disorders contain iodides, and are apt to exaggerate existing inflammations as well as to set up fresh lesions of another kind.

Local Treatment.—This is always necessary. There are certain general rules to be kept in mind. For instance, lotions are, generally speaking, more suitable for acute, and ointments for chronic conditions. Soothe in acute and stimulate in chronic forms. Remove crusts, avoid irritants, use mild antiseptics. As a general rule trust to mild remedies thoroughly applied rather than to powerful applications. An excellent plan is to apply boracic starch poultices from six hours to two or three days, until the inflammation has abated and scales and crusts removed (see p. 26).

Acute and Subacute Eczema.—Avoid soap and water ; crusts can be removed with vaseline or recently boiled milk. Simple boiled water or distilled water applied on sterile lint forms a good dressing for acute weeping eczema. An excellent cooling lotion is black wash :

℞ Calomel - - - - - - gr. xxx.
Mucilag. tragacanth. - - - - ʒi.
Aq. calcis - - - - - - ad ℥x.

M. Ft. lotio. Sig.: Dilute with an equal quantity of water, and apply on lint.

Boric lotion (saturated solution) may be applied in the same way. A good plan is to bathe the parts with the lotion for half an hour, and then apply an ointment of calamine, ½ drachm; hyd. am., 5 grains; and adeps benzoat., 1 ounce. This should be spread thickly on lint, and covered in with oil-silk or other waterproof tissue. The ointment is best covered with fine butter muslin, and the skin may be dusted with a non-irritating powder before applying ointment or poultice. A good powder is novoform 5 per cent., oxide of zinc and starch, āā pts. æq. 95 per cent.

Powders are not indicated for a freely discharging surface, but are excellent where the discharge is slight. Magnesium carbonate is good, or a powder, zinc oxide, boric acid, āā ʒi., amyli ad ʒii. 95 per cent.

Useful antipruritic applications are—

℞ Acidi hydrocyanici dil. - - - ʒii.
Zinci ozidi
Calaminæ - - - - - - āā ʒi.
Linimentum calcis - - - - ad ℥vi.
M. Ft. lin.

or—

℞ Acidi carbolici - - - - - ʒii.
Bismuthi subnit. - - - - ʒii.
Mucilag. tragacanth. - - - - ℥i.
Lin. calcis - - - - - - ad ℥viii.
M. Ft. lin.

or—

℞ Acidi carbolici - - - - - ʒss.
Calaminæ - - - - - - ʒii.
Glycerini - - - - - - ʒvi.
Liq. plumbi subacet. - - - - ℥iv.
Aq. rosæ - - - - - - ad ℥viii.
M. Ft. lotio.

In subacute and indolent eczema more stimulating lotions can be used, with the addition of menthol (ʒii. ad aq. ℥viii.), liq. carbonis detergens (ʒii.-ʒiv. ad ℥viii.).

The best ointment for acute eczema is probably the diachylon ointment of Hebra, with the addition of a little carbolic or boracic acid, or an equal quantity of unguentum zinci oxidi (B.P.) may be added.

The oleates of bismuth and of zinc are good soothing applications, especially in papular forms. In pustular eczema antiseptics should be used.

Lassar's paste is useful in any but freely-discharging forms of eczema. A good formula is—

℞ Talci, Zinci oxidi, Amyli - - - - - - āā ℥ii.ss.
Paraffin. mol. - - - - - - ℥ii.

M. Ft. pasta.

The glycogelatines are excellent in dry forms of eczema. They are melted in a glue-pot, applied while still hot with a brush, and covered with muslin bandage.

A formula is—

℞ Gelatin. alb., Zinci oxidi - - - - - - āā ℥i.
Glycerin. - - - - - - - ℥i.ss.
Aq. destill. - - - - - - ℥iii.

Peck's tragacanth varnish is useful in acute erythematous cases. It is composed of tragacanth 5, glycerine 2, and boiling water 93 parts; to this is added ½ to 2 per cent. of boracic acid and 5 per cent. of oxide of zinc.

In eczema of the scalp of children it is necessary to remove the crusts by soaking the scalp in olive-oil for ten or twelve hours, and afterwards washing with soap and warm water.

In eczema of the folds (intertrigo) and perineum, washing with soap and water is always necessary, and powders are here especially useful.

In eczema of the scrotum a suspensory bandage should be worn. Eczema of the anal region is often connected with piles or painful fissure, which require to be treated. Rest, indicated in the treatment of most forms of eczema, is specially required when the legs are attacked. Where there are varicose veins, the zinc gelatine bandage (see above) is most useful.

Some of the best remedies for eczema are the tar preparations (liq. carbonis detergens, cyllin, olei cadini), mild mercurial preparations, especially ammoniated mercury, and the

various zinc preparations. Lead is not so much used now as formerly, but in its right place it is a most useful drug.

A good ointment for ordinary use is—

℞ Liq. carbonis deterg. - - - - ℥xxx.
Hydrarg. ammon. - - - - gr. xx.
Zinci ox. - - - - - - gr. xx.
Paraffin. mol. } - - - - āā ʒi.
Adipis lanæ hyd. }

M. Ft. ung.

Useful for squamous eczema with thickening is—

℞ Olei cadini - - - - - - ℥ss.
Glycerini - - - - - - ʒv.
Ung. diachyli - - - - - ℥vii.ss.

M. Fiat applicatio.

Resorcin (gr. x.-xv. ad paraffin. mol. ʒi.) is useful as a stimulant.

Prognosis. — It may be stated as an aphorism that all cases of eczema are curable—although many of them are extremely chronic and rebellious to treatment, to say nothing of their tendency to recurrence. It is the commonest of skin affections, and at times imposes a severe test upon the skill and resources of the dermatologist.

5. Ecthyma.

Synonyms.—Furunculi atonici ; Fr., Furuncles atoniques.

Definition.—An acute pus infection of the skin showing one or more large, flat, discrete pustules.

Symptoms.—The lesions occur most often on the legs, as red itching papules, which soon become pustules the size of a pea, increasing to the size of a shilling or rather larger. The pustules contain a cloudy yellowish fluid, often tinged with blood, and set in a red areola. After a few days the pustules dry up into thick, dark brown crusts, beneath which the skin may be slightly ulcerated. The lesions are of a similar type, auto-inoculable, and may run on indefinitely owing to the appearance of successive crops. They have the subjective symptoms, itching and burning, usual in an acute

cutaneous inflammation, and after healing are followed with a certain amount of pigmentation and scarring.

Etiology.—The disease is essentially one of the deep epidermis, with secondary slight affection of the papillary layer. It is due to infection by pus cocci, and may be conveyed by the bites of insects or by scratching. It occurs more commonly amongst people whose bodily resistance is feeble owing to bad conditions as to environment, as regards food, clothing, and so on.

Gaucher* says the pyogenic organism may be internal or external, meaning that they may reach the skin either by means of the blood-stream from within or by direct infection from without. This precisely corresponds with the writer's " excretory irrigation " theory, advanced in 1880.

Diagnosis.—The superficial ulceration distinguishes *ecthyma* from furunculi, in which there is a deep core, and from certain of the *ulcerative crusted syphiloderms*, in which the destructive processes are deeper. *Impetigo contagiosa*, another pus infection, has smaller lesions, often on the face, and there is no ulceration at the base.

Treatment.—Good hygiene, tonics, cleanliness, and nourishing food. *Locally* an antiseptic lotion of carbolic acid and glycerine of boracic acid continuously applied, or an ointment of ammoniated mercury (gr. x. ad ℥i.), cyllin (♏ xv. ad ℥i.), acid. boracis (gr. x. ad ℥i.) ; or a solution of carbolic acid (1 in 20) may be painted over the lesions, which are then dressed with an antiseptic application.

Prognosis.—Favourable.

6. Lichen Ruber.†

Definition.—A somewhat rare, itching, inflammatory condition of the skin characterized by reddish acuminate scaly papules, and discrete or confluent pustules from the size of a millet-seed to that of a split pea.

* *Op. cit.*, p. 305.

† Lichen ruber is retained here, as it seems to cover a certain class of cases. At the same time it should be understood that some dermatologists recognize only lichen ruber planus, while others, again, add lichen ruber acuminatus.

Symptoms.—Numerous papules appear, and often run together into diffuse, infiltrated patches of smooth, waxy appearance and dull red colour, covered with whitish, papery scales. The patches may gradually extend so as to involve the whole body surface. In later stages the thickened skin leads to great suffering; it cracks in places, and interferes mechanically with the movement of the joints; the eyelids especially are thickened and everted, the palms and soles hard and leathery, the nails broken, and the hair scanty. The general health becomes at length involved, and the disease may terminate in emaciation and death.

Etiology.—The origin is unknown.

Pathology.—The main changes consist of hypertrophy of the horny layer, with imperfect keratinization. Later, hypertrophy takes place in the rete mucosum and papillary layer.

Treatment.—This is one of the few diseases in which the administration of arsenic is advocated by the author. It should be pushed rapidly to tolerance, and continued in small doses for some weeks after the disappearance of the rash. Antiseptic and antipruritic remedies are indicated, such as carbolic acid, menthol, etc.

Alkaline baths, followed by inunctions, sometimes afford relief.

Prognosis.—Where the distribution is limited, a cure may be anticipated, but in generalized cases the outlook is grave.

7. Lichen Ruber Planus.

Synonym.—Lichen planus (Wilson).

Definition.—Lichen ruber planus is a chronic inflammatory disease of the skin characterized by itching, shiny, reddish or lilac papules of an angular outline, followed by pigmentation.

Symptomatology.—*Lichen planus* usually comes on insidiously, and persists as a chronic disease, lasting for months or years, with development of fresh crops of papules. Rarely it starts as an acute invasion, and covers nearly the whole of the body and limbs, but it is never generalized. As a rule it

occurs in persons of previously good health, although in a certain number of instances there may be a history of nervous troubles.

The rash may be limited to almost any part of the body (except the face, and rarely palms and soles), or it may be generalized. Its favourite sites are the flexor surfaces of wrists and forearms, the inner sides of the knees and thighs and the lower parts of the legs, and the back of the neck. It is usually symmetrical, and may affect the mucous membranes. In the mouth the lesions appear as small greyish rounded points, which can be identified only by their association with typical papules elsewhere on the skin.

The commonest forms are scattered groups of papules, which often have a linear (or less often curved or annular) distribution, and sometimes follow the course of veins. The papules tend to appear where there is pressure, such as that of garters or corsets. They have a tendency, especially about the knees and legs, to run together into patches, which show in many cases a characteristic lilac colour, and are at times imperfectly scaled. In these patches, however, the lichen papules usually remain distinct, and a few characteristic outlying papules (satellites) can always be found in the neighbourhood.

The essential feature of lichen planus is the flat, firm, angular papule, which persists throughout the course of the attack, does not weep, is at first red, itching, and shiny, often umbilicated, never enlarges at the circumference, but often runs together into patches; the only exception is that sometimes patches may become hypertrophic or warty (*lichen planus hypertrophicus* or *lichen planus verrucosus*), or very rarely vesicular (*lichen planus bullosus*). The tendency to linear arrangement is marked, and exaggerated cases have been recorded in which the lesions have been grouped on limbs and trunk like rows of small beads, or along the course of certain nerves. Occasionally the papules form a ring, often by fresh developments round old lesions.

Etiology and Pathology.—*Lichen ruber planus* occurs chiefly in adults of both sexes, and in all classes of society. Its origin

is unknown, but the writer agrees cordially with Norman Walker that a specific micro-organism will probably one day be identified as the cause.

Microscopically the anatomical characters are constant. Both superficial and deep layers of the skin are involved; it is generally believed to begin in the corium. There is overgrowth of the prickle and thickening of the granular and of the horny layers. At the same time the underlying papillary layer and corium are packed with a dense cellular infiltration, which it has been suggested may be of an infective granulomatous type comparable with certain syphilides.

The author has collected many cases in which patches on the leg indistinguishable from chronic lichen planus have been originated by traumatism in patients suffering from valvular disease of the heart.

Diagnosis.—This is fairly easy if the character and grouping of the lichen planus papules are grasped. Its patches on the legs are sometimes mistaken for *chronic eczema*, *psoriasis*, or *syphilis*. From *chronic eczema* it may be distinguished by the catarrhal and multiform nature of eczema; from *psoriasis* by the thick silvery scales and characteristic distribution of that affection; from *syphilis* by the polymorphic nature of the luetic rash, the absence of itching, and the occurrence of other specific manifestations. The cardinal feature of lichen planus, however masked by secondary changes, is the presence on some part of the body of the typical papules.

Prognosis.—This is favourable. Mild cases recover under proper treatment in a few weeks or months. The chronic patches, however, if untreated, may persist indefinitely. A few fatal cases of the acute variety have been recorded, but as a rule one need not despair of recovery, even in the worst attacks.

Treatment—(*a*) *General.*—The most popular remedy for this disease is arsenic, but the writer finds that most cases do equally well under some mild form of mercury, short of producing physiological effects. If arsenic be used, it should be confined to chronic cases and used with great caution. The general health should be attended to carefully.

(*b*) *Local.*—Antiseptics should be applied to the extent of producing mild stimulation. An excellent ointment is that of Unna :

℞ Acidi carbolici - - - - - gr. xx.
Hydrarg. perchloridi - - - - gr. i.
Ung. zinci oxidi - - - - - ad ʒi.
Sig.: To be applied two or three times daily.

The patches may be painted over with salicylic collodion (20 grains of acid. salicylici to the ounce) ; to this carbolic acid (gr. x.) may be added.

At the same time tar may be applied in the form of cyllin baths (a drachm to the gallon of warm water), in which the patient soaks for half an hour.

X-ray treatment is sometimes useful, and patches occasionally disappear under the application of the high frequency or the galvanic current.

8. **Malignant Pustule, or Anthrax.**

Synonyms.—Malignant pustule ; Splenic fever; Woolsorter's disease ; Fr., Charbon ; Ger., Milzbrand.

Definition.—Malignant pustule (external anthrax) is a gangrenous infection of the skin due to local invasion by the *Bacillus anthracis*, which rapidly sets up general and usually fatal constitutional symptoms.

Symptomatology.—With internal anthrax we are not concerned, as there are no cutaneous manifestations. In that form the infection probably enters through the respiratory passages. The external form is met with in the United Kingdom chiefly among the woolsorters at Bradford and amongst the labourers who unload foreign hides on the Thames. The handling of infected hides or fleeces and contact with a cut or abrasion of the skin are usual initial conditions of infection. The disease begins as a red spot, which speedily involves the surrounding parts in an acute, unwholesome-looking inflammation. There is a singular absence of pain, but a large hard papule appears surrounded with brawny swelling and large vesicles. Later, a dark slough forms in the centre. Within a few days of the first invasion the disease,

at first local, becomes general. The patient may die rapidly of septic fever.

Etiology and Pathology.—The disease is common in cattle and sheep, and is interesting as having been the first demonstrated by Koch in 1876 to be due to a vegetable micro-organism.* The spores are resistant, and by their agency the infection is spread. *Microscopically* the bacillus is a straight or slightly curved rod about 0·001 millimetre in thickness and 0·005 to 0·02 millimetre in length. The rods are joined in chains, and are non-motile. Abundant bacilli are found in the capillaries of the affected part. *Post mortem* the spleen is enlarged and other organs are involved; there are multiple tissue hæmorrhages and effusion into serous cavities.

Pasteur introduced a method of protective inoculation of cattle against anthrax by an attenuated virus. Within the past few years a protective serum has been introduced by Sclavo, and Jordan† says of the latter: "The mechanism by which the protective serum exerts its action is not certainly known. With our present knowledge, perhaps the most reasonable view is that which would look upon anthrax immunity as a phagocytic immunity, and the function of the immune serum as sensitizing or opsonic." It is to be hoped that an extension of these observations will result in some curative method as regards man.

Treatment.—Early complete removal of the local lesion is the only course that offers any chance of recovery. This may be effected by actual cautery or by excision with the knife. The free use of tonics and stimulants is indicated.

Prognosis.—Grave; mortality, 30 to 50 per cent.

9. Herpes Simplex.

Synonyms.—Symptomatic herpes; Herpetic fever.

Definition.—An acute inflammatory eruption characterized by one or more small round vesicles arranged in groups upon an inflamed base; common upon the lips and genitals.

* Davaine and Rayer demonstrated a rod-like organism in 1850.
† *Op. cit.*, p. 227.

Symptoms.—Herpes is often symptomatic of constitutional disturbance, and is ushered in by slight rigor and feverishness. *Locally* the vesicles at first contain a clear fluid, which soon becomes turbid, and they either break or dry up into yellowish or brownish crusts, which after a few days fall off, and leave no trace in the shape of pigmentation or scarring. They are often symmetrical, and are attended by slight itching or burning. The attack as a rule is over in a week, but relapses are extremely common. Some regard the feverish type with disseminated lesions as an exanthem. The mucous membranes are sometimes involved; indeed, the mouth and throat may alone be attacked.

Varieties.—The parts most frequently attacked are the face (*herpes facialis*), the lips (*herpes labialis*), and the genitals (*herpes progenitalis*). In the last mentioned it is found in and about the glans and prepuce of penis of the male, and upon the labia of the female.

Etiology and Pathology.—*Herpes simplex* is due to direct or to reflex irritation of terminal nerves. About the lips it is commonly met with in catarrhs, pneumonia, and many febrile disorders, and is commonly spoken of as a "cold." In that position it is often symptomatic of disorders of the digestion, or of local irritation, such as that from acute coryza or from exposure to extremes of heat or cold.

Herpes preputialis is common in gouty or neurotic subjects, and may be associated with external friction or irritating discharges. The vesicular fluid contains staphylococci, but no specific organism has been identified. Frequently, however, it is of obscure origin, and is apparently independent of sexual conditions, although some authors have attributed it to abeyance of the sexual function. In women *herpes* may be connected with menstruation.

Speaking generally, *herpes simplex* is influenced by individual predisposition, and is more liable to occur in neurotic subjects.

Diagnosis.—The short acute course run by a cluster of vesicles grouped on a red base in one of the sites mentioned is usually enough to distinguish the disease. *Herpes zoster* is

much more severe, and affects the whole area of distribution of a given nerve, besides being painful. At times, however, *herpes preputialis* may become ulcerated as the result of pus infection or improper treatment, and may be mistaken for a soft sore; or it may be specifically infected by syphilis. Chicken-pox is known by the fact that the vesicles are discrete, never grouped.

Treatment.—Little is needed by way of treatment. *Internally* a few doses of quinine or an aperient iron mixture may be given. *Locally* protection may be given by a coat of flexile collodion, or by anointing the parts with oxide of zinc and boracic ointment. Beneath the prepuce the parts must be frequently washed, and dusted over with a powder of calomel and starch or dabbed with a lotion of black wash. Sexual intercourse may be suspended when the attacks are isolated. Where the affection runs an indefinitely recurrent course, it need not be held a bar to marital intercourse. The author had a man under his care who, although married for several months, had not consummated the union, because he was never free from herpes, and feared to communicate the disorder to his wife. Quacks sometimes persuade a sufferer that his herpes is a grave venereal disorder. It is not uncommon for patients to apply strong remedies to a herpes of the genitals, under the impression that it is of venereal origin, and thereby to irritate the lesion into a shallow excoriation or ulcer. The herpetic vesification is said to be absorbed by the early application of pure alcohol.

Prognosis.—Always favourable, although herpes of the lips may be premonitory of grave constitutional disorders, as pneumonia.

10. Herpes Zoster.

Synonyms.—Shingles; Zona; Zoster; Ignis sacer; Ger., Feuergürtel.

Definition.—An acute inflammatory disease of the skin characterized by groups of vesicles upon an inflamed base, distributed along the course of one or more cutaneous nerves, most frequently the intercostal nerves, but it may occur in almost any part of the body.

Symptomatology.—The first stage is that of a neuritis, with pain, which may be slight, especially in young persons, or severe, and even agonizing, lasting for days or weeks before the appearance of the eruption. The eruption begins suddenly with a crop of small red grouped papules, which turn rapidly into tense vesicles from the size of a pin-head to that of a pea or larger. There may be several crops, and the papules may be few and disappear rapidly; but usually they form vesicles, which become turbid and gradually dry up and disappear. The inflammatory process may go on to almost any degree of severity, with suppurative ulceration and superficial or deep scarring. For some reason or other deep scars are specially prone to occur in supra-orbital zoster. At times the lesions are gangrenous, and in this event constitute a grave condition, and are apt to be complicated with pneumonia.

Under ordinary circumstances, in a mild case, the rash fades away in a week or ten days. Successive crops, however, may keep up the attack for two or three weeks, and the ulcerative processes prolong the period for weeks or months.

The most common seat of herpes zoster is over one or two of the intercostal nerves from the spine to the sternum, the groups of papules appearing first over the interior lateral and dorsal branches. It may attack any cutaneous sensory nerves of trunk, head, and limbs. It is common along the branches of the trigeminus, especially in its supra-orbital branch; when the ophthalmic branch is involved, vesicles may appear on conjunctiva and cornea, and lead to ulceration of the latter; iritis may at the same time develop, and the process end in destruction of eyesight. Herpes is as a rule unilateral, but at times is symmetrical. When both the trifacial areas are involved, it is said to be usually of specific origin.

Etiology.—Herpes is due to a nerve lesion, usually of a posterior spinal ganglion, but the nerve may be affected in any part of its course, as by cold or injury. It may be due to reflex irritation, as in the case of a decayed tooth. Some authorities think it is a specific infectious fever with a local manifestation. That view is to some extent borne out by the

fact that one attack confers immunity, and that it sometimes occurs in epidemics. Hutchinson long ago pointed out that it might result from taking arsenic. On the whole it seems to be an affection symptomatic of various causes, toxic, mechanical, reflex, and constitutional.

Pathology.—In almost all cases herpes zoster can be traced to a neuritis which involves the posterior ganglion of the affected nerve; but the nerve may at times be affected, or there may be in rare instances hæmorrhage into a ganglion, with subsequent degenerative changes.

Anatomically the process is one of acute inflammation, commencing in the papillary layer of the corium, at times extending more deeply into the subcutaneous tissues.

Diagnosis.—The sudden appearance of grouped papules on an inflamed base, rapidly turning into vesicles, along the course of a cutaneous nerve, and preceded or accompanied by pain of a neuralgic character, marks off the clinical picture of herpes zoster sharply enough. Its unilateral nature as a rule distinguishes it from *herpes simplex;* the vesicles of the latter, moreover, rupture spontaneously and form crusts, and are usually more or less symmetrical. In one remarkable case under my care a malignant growth involved the skin of the left thorax in a distribution resembling that of ordinary shingles, an affection which was actually diagnosed before the patient came to hospital.

Prognosis.—Shingles usually runs a mild course, and tends to self-cure within a few weeks. The special risks of attacks involving the eye, and of gangrenous lesions in debilitated subjects, should be borne in mind.

Treatment.—The pain may require relief before, during, or after, the attack. Good local applications for this purpose are cocaine ointment (4 per cent. strength), carbolic acid (added to calamine ointment 1 per cent.), or the A.B.C. liniment (aconite, belladonna, and chloroform: to be used only on unbroken skin). Internally $\frac{1}{3}$ grain of morphia may be administered subcutaneously, or a dose of tinctura opii by mouth. An excellent plan of treating the eruption is by a dusting-powder of calamine, boracic acid, of each 2 drachms;

starch to 1 ounce. Apply to parts and swathe in cotton-wool. Or the parts may be dressed with ointment (under oilsilk) of calamine (ʒii.), boracic acid (gr. xxx.), vaselinum et lanolinum (āā ʒss.); a little cocaine (4 per cent.) may be added to the ointment if the pain be excessive, and carbolic acid if there be ulceration. A good early application for mild cases is collodion. The pain may be relieved by galvanism.

Constitutional treatment by quinine, iron, strychnine, and other tonics, is often of the greatest value. Rest, good food, and fresh air, are indicated.

11. Hydroa Vacciniforme.

Synonyms.—Hydroa æstivale; Hydroa puerorum (Unna); Recurrent summer eruption (Hutchinson).

Definition.—A rare disease, usually in boys, characterized by crops of scar-leaving bullæ, which recur again and again and tend to disappear about puberty.

Symptoms.—The eruption begins as red macules, upon which vesicles and bullæ develop. It attacks chiefly the uncovered parts, and is most active during the summer months. The bullæ form crusts, which fall off and leave reddened, depressed scars. The disease affects boys, and disappears at adolescence. The subjective symptoms are of a burning rather than an itching character.

Diagnosis.—*Vesicular eczema* is distinguished by its itching.

Etiology and Pathology.—Little is known about causation. It may be due to toxic excretion, and is probably connected with altered nutrition. Eosinophiles are found in the bullous contents; there is papillary congestion, with œdema and small-celled infiltration of surrounding parts. The heat rays of the sun or other special rays are possibly concerned in causation.

Treatment.—Unsatisfactory. The bullæ should be punctured and treated antiseptically. Exposure to sun and wind should be avoided.

12. Impetigo.

(*a*) *Impetigo Simplex.*

Definition.—An acute inflammatory disease of the skin, non-contagious, due to coccic invasion, and characterized by one or more firm, elevated, discrete pustules.

Symptoms.—The eruption occurs chiefly on the face and hands, and is pustular from the start. It consists of firm, tense pustules, from the size of a pea to that of a finger-nail, with no tendency to burst or to coalesce. Yellowish scabs form in a few days and fall off, leaving a slight stain but no scar. A slight itching is sometimes felt.

Etiology.—The disease is due to invasion of the skin by a coccic organism, and most often occurs in children otherwise healthy. It is regarded by most authors as presumably a non-contagious variety of *impetigo contagiosa.*

Diagnosis.—*Impetigo contagiosa* is distinguished by its greenish crusts, its vesicular commencement, and its extreme contagiousness, as well as its less general distribution.

Treatment.—Antiseptic applications.

Prognosis.—Favourable. Even if untreated, it tends to recovery within a few weeks.

(*b*) *Impetigo Herpetiformis.*

Definition.—A grave malady in which pustular lesions attack the breasts, genito-crural region, and axillæ, of women, usually occurring in pregnancy, and symptomatic of serious and usually fatal constitutional trouble.

Symptoms.—This rare malady was first described by Kaposi. It begins as small pustules about the navel, axillæ, or groin, clustered in groups upon a red base. The patches dry up in a few days into greenish crusts, and the lesion extends progressively by the addition of a fresh margin of pustules until the whole body may be more or less covered. On removal of the crusts, the underlying skin is found red, smooth, and sometimes moist. The mucous membranes of the mouth are often invaded. At the same time there is

continuous fever and repeated rigors. The disease nearly always terminates fatally within a few weeks or months.

Etiology and Pathology.—The disease appears to be of the nature of a general sepsis. In some cases there have been uterine complications. Possibly there may be a specific pathogenic agent.

Diagnosis.—The separation from pustular forms of *dermatitis herpetiformis* should not be difficult ; the latter disease is multiform, attacks all ages and both sexes, and is attended with less serious constitutional disturbance.

Treatment.—Unsatisfactory.

Prognosis.—Bad.

(*c*) *Impetigo Contagiosa.*

Definition. — An acute, highly contagious inflammatory disease of the skin, most often occurring in children, due to pus infection, characterized by the rapid formation of crusted superficial vesico-pustules.

Symptomatology.—The eruption begins in the form of vesicles, which become pustular, and in a few days form gummy-looking yellowish or greenish crusts (sometimes blackish from admixture with blood). The crust has a curious raised appearance, as if stuck loosely on the skin, and if removed leaves a slightly eroded reddish surface which heals without scarring. The lesions appear chiefly on the face, ears, and neck, and in children on the scalp, less often on the hands, and rarely on the body elsewhere. In children permanent scarring sometimes follows on the scalp.

Etiology.—*Impetigo contagiosa* is due to pus infection. The pyogenic organism is most commonly a mixture of streptococcus and staphylococcus, spread by scratching with the finger-nails. It is inoculable and auto-inoculable, and the primary source of the mischief often lies in a pustular lesion of the finger, which may in turn be due to a scratch or burn, or to the irritation of scabies. An exceedingly common origin in hospital practice is an infected excoriation of the scalp that has been plagued by pediculi in the occipital region, or in connection with vaccination or pustular ringworm. In

children it is not infrequently found associated with a pyogenic nasal condition. It often runs through a family of children, and epidemics are common in schools. When met with in adults, it is usually in mothers who have been exposed to infection from their children, and in men who are shaved at barbers' shops. An interesting point is its frequent occurrence during convalescence from chicken-pox and other febrile communicable diseases.

Pathology.—Streptococci seem to be more commonly the cause than staphylococci, and of the latter both *Staphylococcus pyogenes aureus* and *albus* are sometimes present. Sabouraud regards the ordinary form as due to streptococcus, complicated at an early stage by staphylococci, while a distinct follicular impetigo (Dockhart) is caused by primary staphylococcic invasion.

Diagnosis.—The chief distinguishing points are—

1. Absence of infiltration.
2. Absence of itching.
3. Isolated nature of patches.
4. Rapid development of pustules to crusts.
5. Superficial nature of lesion, its contagiousness and absence of scarring.

Impetigo contagiosa should be distinguished from chronic pustular eczema, which itches, forms large patches, is infiltrated, and is not contagious. From scabies it differs in not itching and in being chiefly on the face. A bullous form of impetigo contagiosa may be confused with pemphigus. The latter, however, is chronic ; it occurs chiefly in adults after vaccination, is non-contagious, and retains its bullous form. Nevins Hyde, Adamson, and others, say that *pemphigus neonatorum* is one form of contagious impetigo.

Prognosis.—Favourable. There is a tendency towards spontaneous recovery. The disease soon yields to treatment.

Treatment.—Treatment is simple. Wash with mild carbolic acid or other antiseptic soap. Puncture pustules and remove crusts with soap and water. Dress the affected surface with white precipitate ointment, which acts like a

charm in this affection. Look for and treat any particular source of origin, such as a whitlow, scabies, or pediculi. The general health may need tonics or alteratives, with attention to food, clothing, and other details of environment. Measures should be taken to prevent the spread of the disease by the use of antiseptic baths for the patient, disinfection of clothing, towels, and so on.

13. **Pemphigus.**

Synonym.—Pompholyx.

Definition.—An acute or chronic disease of the skin and mucous membranes characterized by the eruption of bullæ of various shapes and sizes.

There are several varieties. The acute form is rare. It may be divided into acute benign, acute malignant, and an epidemic pemphigus of newly-born infants.

Benign Acute Pemphigus begins with moderate fever for a day or two before the appearance of crops of bullæ, from a pea to a hazelnut in size, localized or general, and subsiding in scales or crusts. Duration one to four weeks, and prognosis good.

Malignant Acute Pemphigus has high fever, rigors, and severe constitutional symptoms, lasting throughout the whole of the eruption. The contents of the bullæ become purulent, and the patient may suffer from epistaxis, intestinal hæmorrhage, or pneumonia. Death follows in a week or two. Pernet and Bulloch discovered a diplococcus in cases following a bite or wound.

Etiology.—In both forms the disease appears to be of the type of an exanthem, depending on specific infection by an organism which Gaucher found in several cases to be a streptococcus.

Treatment.—Puncture of bullæ and dressing with antiseptics. Quinine or sulphocarbolate of soda internally.

Pemphigus Neonatorum usually appears on or shortly after the fifteenth day of birth. The eruption appears in patches, in which within twenty-four hours develop bullæ about the size of a lentil. It may affect any part of the body, but rarely

involves palms and soles. The eruption appears in crops which last for a week, and the whole course may be four weeks.

Etiology.—Isolated cases are met with, but it more usually occurs in epidemic form. It is contagious and inoculable, and depends on invasion by a streptococcus. It is looked upon by many observers as the infantile form of contagious impetigo, caused generally by the *Streptococcus pyogenes aureus*, but always associated with staphylococci.

Benign Chronic Pemphigus.—In this form the bullæ are few in number, and recur on the same region at irregular intervals, without subjective symptoms. An attack may last for weeks or months, but does not affect the general health.

Malignant Chronic Pemphigus.—The lesions may or may not be preceded by prodromal symptoms. The bullæ spring from red spots, and are from the size of a pea to a walnut or larger, springing from a red base or from apparently healthy skin. The contents of the blebs are at first opalescent, but they may become purulent. They do not rupture easily, but gradually dry up after lasting a few days. Some may become hæmorrhagic or develop gangrenous ulceration. The mucous membranes of the conjunctiva, mouth, and pharynx, are often involved.

The disease is extremely chronic, and in its generalized form often fatal.

Etiology.—The cause is obscure, but is probably due to a specific pathogenic infection.

Pemphigus Foliaceus.—This variety is distinguished by the flaccid bullæ, which tend to rupture easily, leaving red excoriated surfaces and crusted, thin epithelial flakes. The bullous stage is short, and the eruption generalizes quickly, so that the whole cutaneous surface is involved. The scales are often shed abundantly, and a fœtid odour is generally present. There is no pain, but after a time the general health suffers, and the patient dies from exhaustion or intercurrent malady. It is doubtful whether recovery ever takes place.

Pemphigus Vegetans is a form in which fungous vegetations form on the denuded bullous surfaces. The disease

begins chiefly in the groins and perineal region and in the axillæ, or, according to some observers, on the mucous membranes of the mouth and vulva. The lesions spread, but do not involve the whole body; they develop a fœtid odour. The disease sets up a cachexia, and sooner or later ends fatally. Streptococci have been found, also spirochætes.

14. Psoriasis.

Synonyms.—Lepra; Psora; Ger., Schuppenflechte.

Definition.—Psoriasis, one of the common skin diseases, is a chronic inflammatory affection characterized by sharply-defined patches of various sizes, with a slightly elevated red base, covered with thick, dry, adherent, silvery white scales. The patches heal without ulceration and without scarring, but there is a marked tendency to recurrence.

Symptomatology.—The disease begins as small red papules, from which by a gentle scratching with the finger-nail whitish scales can be detached. These spots increase at their periphery, and may be arrested at about the size of a pea (*psoriasis guttata*), or they may go on to the size of a coin—sixpence to a crown piece (*psoriasis nummularis*). Healing in the centre, they take circinate forms, and, coalescing, may form various gyrate or festoon outlines. Large sheets of eruption are described as the diffuse form. In rare instances the whole body may be involved (*psoriasis universalis*). The scales are silvery white and imbricated, and extend to the edge of the patch. Scraping them off gently with a knife, one comes upon a membrane like a layer of gold-beater's skin. On removing this a number of fine bleeding-points come into view. This is a diagnostic test of psoriasis, even if the latter be regarded as a variety of seborrhœa. The base of the psoriasis patch is smooth and red; it is never moist at any period of the disease. It tends to heal in the centre, and eventually disappears, after more or less marginal extension, without scar formation.

The distribution is characteristic. The scalp and the extensor surfaces of the limbs, especially the elbows and knees, are most commonly attacked. Any part of the body

may be involved. The lower part of the face and palms and soles are rarely invaded, although the nails are frequently affected.

Psoriasis rarely appears before the age of seven, and is commonest in young adults. It affects both sexes equally, and when once established is exceedingly prone to recur. It does not attack mucous membranes, and as a rule does not itch, and there is no disturbance in the general health; indeed, the malady notoriously affects persons who are robust. While psoriasis is generally chronic, it now and then takes on an acute form with the appearance of a number of fresh lesions of a highly inflammatory character. Speaking generally, it is worse in winter and in cold climates. In parts where there is much movement or friction the patches may become cracked and fissured, but never become eczematous in the true sense of the word.

Etiology and Pathology.—The causes of psoriasis are unknown. It is not contagious, although it may affect various members and may appear in successive generations of one family. It appears to be associated in some way with the gouty and the rheumatic states. No specific pathogenic organism has been identified, but the nature of the eruption is suggestive of a microbial origin.

Lately I have investigated a large number of cases of chronic and recurrent psoriasis, from a few months up to thirty years' duration. In a large proportion of these cases I have found valvular heart disease or some myocardial affection; in a few the myocardial weakness was traceable to influenza or to tobacco. The precise proportion of these cardiac cases has not been as yet accurately determined, but it probably reaches in my experience as high a figure as 70 or 80 per cent. It should be carefully noted that there are cases of chronic psoriasis in which no defect of the central circulation was discoverable. Some of the cases followed accidental injury. In such instances the psoriasis or the psoriasiform patches may be confined to, say, one leg for years, and then affect the other leg or become generalized. In another group of cases a chronic psoriasiform rash was

associated with arterio-sclerosis or other abnormal conditions of bloodvessels.

Pathologically the process consists of a circumscribed inflammation or hyperplasia of the epidermis and the corium. The main changes are: enormous increase of the horny layer, giving rise to the silvery scales; enlargement of papillæ with dilatation of their bloodvessels (the bleeding-points), with hypertrophy of the prickle cells and abnormal keratinization. There are chronic inflammatory changes in the corium, with atrophy of glands.

From a general consideration of the eruption it seems difficult to avoid the conclusion that it is of microbic origin. Some maintain that it is only a special form of *seborrhœic dermatitis*, which is almost certainly bacterial. The two conditions as a rule coexist, for psoriasis of the body is rarely met with apart from dandruff or other evidence of seborrhœa of the scalp. It has occurred to the writer that the psoriasis patches may be caused by a blood-distribution of seborrhœic organisms that have originally found an entrance through the scalp, and are attempting excretion from the body by way of the skin. This view would account for the variation in appearance between *seborrhœic dermatitis*, in which the infection comes from without, and psoriasis (possibly) from within.

Diagnosis.—Typical cases can scarcely be mistaken for anything else. Less marked lesions, however, may be confused with *seborrhœic dermatitis*, *scaly syphilides*, and *lichen planus*.

In *seborrhœic dermatitis* the scales do not extend to the edge of the patch; they are yellowish and greasy, and are rarely, if ever, found on the tip of the elbow and over the ligamentum patellæ. The lesions of psoriasis, again, are of uniform type. *Lichen planus* patches, especially on the legs, are most often mistaken for psoriasis. Their scaling, however, is imperfect, and never in dense scaly white flakes. On careful inspection the individual lichen papules can be distinguished, and it may be seen that the patch is made up of a large number of confluent papules. In the neighbourhood,

typical angular, flat, reddish, itching papules (satellites) may be found. Lichen affects flexor rather than extensor surfaces, and in its larger patches more infiltration and pigmentation are seen than in psoriasis. Some scaly syphilitic rashes are at times mistaken for psoriasis. The papulo-squamous secondary rash affects the trunk rather than the limbs ; its lesions are of coppery colour, while they are found to lack the silvery-white, evenly-distributed scales and the uniform type of psoriasis. Lastly there are the various concomitant signs and symptoms of *syphilis*. The latter apply also to the tertiary scaly syphilide, which may appear as a very late tertiary symptom. It is asymmetrical, leaves scars, may involve palm or sole, and is usually more or less amenable to antisyphilitic remedies. There is no particular reason why the coexistence of the two diseases on the same patient should not add to the difficulties of diagnosis. Many a psoriasis patient has been treated energetically for syphilis, and *vice versâ*.

Prognosis is favourable as regards general health and duration of life. In most cases the individual attack can sooner or later be disposed of, but there is always the inveterate tendency to recurrence. It must be borne in mind that in some cases the rash disappears spontaneously. In the writer's experience, the best chance of permanent cure is obtained by treating the scalp and maintaining it in a healthy condition. It is only in rare instances that psoriasis becomes generalized into *pityriasis rubra*, in which case the outlook becomes proportionately grave.

Treatment.—Internal drugs are at times useful, but in most cases external remedies are alone required. Of drugs that seem to have a specific action may be mentioned arsenic, salicylate of soda, iodide of potassium, and thyroid gland. Arsenic should never be used in acute psoriasis, and in the author's experience equally good results can be obtained in chronic cases without its aid. Still, it may be tried cautiously in obstinate cases that resist other measures. It can be given either as Fowler's solution (℥ iv.-x. t.d.s.), given after meals and pushed to its physiological effects, or as Donovan's solu-

tion (ℳx. t.d.). Both the salicylates and iodide of potassium in large doses at times do good. Thyroid gland causes the rash to disappear in some cases, but has to be used cautiously and always under strict medical supervision.

Externally, the first thing is to get rid of the scales, and then to follow up with stimulating antiseptic applications. A good plan is to soak in a warm bath, and to scrub the patches with soap spirit (spiritus vin. rect. and sapo viridis āā pts. æq.), or the warm alkaline bath (sod. bicarb., ℥ii. to the gallon of water), or creolin (℥i. to the gallon), or cyllin (same strength), the scales being rubbed off with a soft Turkey bath-glove or a nail-brush. Prolonged soaking for half an hour or forty minutes may be needed. This may be repeated every other day, and when the scales are finally removed, if the patches be inflamed, it is better to wait a day or two, and apply a soothing ointment (*e.g.*, calamine, gr. x. ad ℥i.) before commencing stimulants. Creolin or cyllin (℥ss. ad ℥i. benzoated lard) is excellent combined with ammoniated mercury (gr. x.), and sometimes salicylic acid. For the scalp a lotion of liquor carbonis detergens (℥i.), salicylic acid (gr. xx.), and spirit (℥iv.), may be well brushed into the roots of the hair, and the scalp scrubbed daily with coal tar soap.

The B.P. ointment of tar is efficacious, but not cleanly. It should be well rubbed into the eruption after removal of scales, and the patient sleeps in his tarry nightclothes or under-linen.

Chrysarobin is a powerful remedy. It has various drawbacks ; for instance, it stains linen indelibly, it is a violent irritant, and causes facial œdema and acute conjunctivitis if it comes accidentally in contact with the eyes. For the latter reason it should never be applied to the scalp. After removal of scales, the patient is rubbed with a 5 per cent. chrysarobin ointment in vaseline, and dressed with the same application spread on lint. The face should be protected by a linen mask, the patient kept in bed, and the treatment continued, if necessary, for a week. In a few days there is intense dermatitis surrounding the patches, and if the patient can withstand the discomfort for a few days longer the patches

may be cured. Occasionally this method results in *pityriasis rubra.*

Chrysarobin may be applied locally to chronic patches with little trouble. It is best painted on rubbed up with water, and when dry coated with collodion. A capital plan for local application is to rub the part firmly with Brooke's chrysarobin stick. Other drugs by the score have been advocated. The practitioner, however, if he has grasped the principles of treatment, will find the remedies above-mentioned sufficient for his purpose. There is hardly any disease of the skin that requires more patience and attention to detail to ensure successful treatment. It is not an uncommon experience for a patient to lose confidence in some given plan of treatment which he fancies has done little or no good. He then resorts to some spa or other form of treatment which is wrongly credited with the subsequent " cure," and its efficacy lauded until it fails in a recurrent attack.

To recapitulate: one most do little in acute and stimulate boldly in chronic stages. Local treatment is all-important after removal of scales. The scalp should in all cases be carefully treated, and to avoid recurrence it is essential to keep up tar applications some time after the disappearance of the rash.

Prognosis.—Good for recovery, but apt to recur.

The Turkish or vapour bath is valuable, and in some cases the author has seen a psoriasis rash disappear under a prolonged course of hot-air baths.

15. **Pityriasis.**

(*a*) *Pityriasis Rosea.*

Synonyms. — Pityriasis maculata et annulata; Herpes tonsurans maculosus.

Definition. — A rare, mild, inflammatory disease of the skin of limited duration, characterized by the rapid symmetrical development of a superficial eruption of rounded or annular macules or patches, of a faint red colour and covered with fine scales.

Symptomatology.—After a slight period of malaise and mild fever, an eruption appears upon the neck, chest, or trunk, but rarely on exposed parts. Slight itching is sometimes felt. There are two forms of rash, the macular and the annular, both of which appear to begin as small pin-head spots, which spread at their edge and reach to the size of ½ inch or 1 inch in diameter. The patch is of a peculiar rosy-red colour, covered with fine scales. In the annular form the centre clears, and has a look somewhat like parchment. There is a tendency to fresh crops, but the disease rarely recurs. About a week before the main eruption a "herald" patch appears, but is often overlooked; indeed, the malady is so mild that it frequently escapes notice.

Etiology and Pathology.—The origin of the disease is obscure. It is most common in female adults. No organism has been as yet identified. The microscope shows mild inflammatory changes.

Diagnosis.—The exanthems are distinguished by the greater constitutional disturbance and by the shorter duration of the eruption. From ringworm (*tinea circinata*), *pityriasis rosea* is known by the abundance of the lesions, their rapid development, and the absence of the pathogenic fungus. From *psoriasis* and *seborrhœic dermatitis* it is known by the absence of infiltration of its patches and rings, and by the fine, branny scales. From squamous and circinate syphilides it may be distinguished by its rapid development, its non-appearance on face and hands, and the absence of other signs of secondary syphilis.

Treatment.—Little is required, as the disease tends to spontaneous cure in four or five weeks, although it may last for many months, or even longer in rare instances. Recovery may be hastened by hot antiseptic baths.

Prognosis.—Favourable.

(*b*) *Pityriasis Rubra Pilaris.*

Synonym.—Lichen ruber acuminatus.

Definition.—A mildly inflammatory, rare, chronic, desquamative affection of the skin, and primarily affecting the hair

follicles; is sometimes attended with impairment of the general health.

Symptoms.—The essential feature of the malady is the widespread (often quite general) occurrence of small pale yellowish or pinkish horny papules, pierced by a hair, although the disease may begin with redness and desquamation of palms and soles, or as a dry, eczematous eruption of the face and scalp. The characteristic skin lesion soon follows, and the numerous conical horny papules have been likened to a goose-skin in appearance and a nutmeg-grater to the touch. In advanced cases the folds of skin around the joints are exaggerated, especially in the fingers, where also is seen another distinctive feature—namely, small dark points (broken-off hairs) on the backs of the proximal phalanges. There are more or less brawny continuous sheets of desquamation. About the elbows and knees the diffuse white scales are sometimes mistaken for psoriasis by those unacquainted with the condition, and the typical horny papules may always be found at the borders. Itching, if present, is usually slight. The scalp is constantly affected, and the nails may be involved. The disease runs on indefinitely, and relapses are common. As a rule the general health is not altered.

Etiology.—Causation is obscure. Most often the malady attacks children and young adults, and is more common in males.

Pathology.—A cone is formed at the apex of the hair follicle, with one half dipping downwards into the papule, and the other projecting freely outwards. There is hyperkeratinization of the walls of the hair follicle. The hairs may be broken off short, or imprisoned, when they sometimes become coiled in a circular position. When the cone is removed, the released hair rises into its proper position.

Diagnosis.—The two conditions *pityriasis rubra pilaris* and *lichen ruber acuminatus* are here regarded as practically identical. The main distinction that can be drawn between the two varieties is that in lichen ruber acuminatus the general health may be seriously or even fatally involved. *Ichthyosis*

is congenital, and does not show the cones and redness of surface. *Psoriasis* is known by its larger silvery scales, but does not specially involve the hair follicles. In *exfoliative dermatitis* there are no conical papules, and the health is always seriously involved. *Lichen ruber planus* is known by its itching, and its flat angular papules are readily distinguishable from the conical papules of *pityriasis rubra pilaris.*

Treatment is unsatisfactory. Arsenic may be given cautiously, and thyroid gland. Antiseptic baths should be tried with soothing inunctions. Oil of cade, glycerole of oil of cade, and glycerole of starch, are useful.

Prognosis.—The malady may persist for many years, and even some time after apparent recovery constantly recurs. A fatal termination may now and then be anticipated.

16. **Pompholyx.**

Synonyms.—Dysidrosis ; Cheiro-pompholyx.

Definition.—A rare acute inflammatory affection of the skin characterized by vesicles and bullæ attacking the hands and feet.

Symptoms.—The eruption is symmetrical, and begins with itching and tingling, followed by minute vesicles deeply seated under the epidermis, and resembling boiled sago grains. They may disappear, and be followed by slight desquamation, or run together into blebs the size of a lentil or a pigeon's egg. The skin around the lesions becomes inflamed and painful. When the bullæ dry up the skin flakes off, leaving a smooth reddened surface. The malady attacks palms and soles and hands generally, especially the backs of fingers. As a rule no constitutional symptoms are present.

Etiology.—This affection is met with most commonly in persons who sweat profusely. It occurs chiefly in early and middle adult life. It is more frequent in women. It occurs chiefly in spring and summer.

Pathology.—Many hold it to be of vasomotor neurotic origin, affecting the sweat glands. The process resembles eczematous inflammation, but is clinically of a distinct type.

The vesicles and blebs are in the deeper layer of the rete mucosum.

Diagnosis.—The disease must be distinguished from eczema and pemphigus, which can readily be done by its distribution and course.

Treatment.—Tonics and careful attention to the general health are almost always needed. Locally the affection is little influenced by treatment, but mild sedative and antiseptic applications are indicated. Galvanism may be useful.

Prognosis.—As a rule the disease disappears of its own accord within a few weeks. Occasionally, however, it lasts for months, or it may recur again and again, especially during the winter months, for an indefinite number of years.

CLASS IV

DISORDERS OF THE SEBACEOUS GLANDS

1. Seborrhœa.

Synonyms.—Acne sebacea ; Steatorrhœa ; Dandruff ; Ichthyosis sebacea ; Fr., Acné sébacée ; Ger., Schmeerflaus.

Definition.—A disease of the sebaceous glands, characterized by alteration of sebum, which may be increased or decreased, and associated with various oily, greasy, and scaly conditions of the skin.

There is considerable diversity of view as regards what is or is not seborrhœa. Hebra described two distinct forms, seborrhœa oleosa and seborrhœa sicca ; to this will be added here a mixed type. Scaling and greasiness are the essential features, and they may vary in relation. Dandruff represents much scaling and little sebum, oily seborrhœa of the scalp the reverse, but the scales can always be brought into prominence by scratching the apparently oily crust.

In *seborrhœa oleosa* there is an excessive flow of sebum, seen in its typical form upon the nose and forehead, and sometimes upon the scalp. There is slight reddening of the scalp and occasional slight itching, but the process is one of extremely chronic mild inflammation, and results in atrophy of hair follicles and thinning of hair. Now and then a more acute inflammation ensues, and we have the condition known as *seborrhœic eczema of the scalp*.

Seborrhœa sicca occurs most commonly on the scalp, which is covered in part or altogether with greyish scales. This form also ends in destruction of hair. One point of these seborrhœas of the scalp is that they spread to the forehead and adjacent skin, especially behind the ears.

The mixed type is seen on the scalp, although it may be regarded as an acute inflammatory phase of one of the ordinary forms. Speaking generally, an inflammatory process which is registered on the scalp in the form of scales may appear elsewhere on the body surface as a red exudative and more objectively active dermatitis.

Seborrhœa corporis, or seborrhœa of non-hairy parts, is common over the sternum and between the shoulders, where it appears as faint red, marginate patches, of irregularly rounded or flower-leaf shape, covered with greyish oily scales. Each patch begins as a small red point, and spreads peripherally. This rash is specially apt to affect the bends of knees and elbows, armpits and groin, whence it spreads in a sheet with strongly-marked margin, which is sometimes slightly papular, or even vesicular. The old name for this condition was *eczema marginatum*. Seborrhœa of the genitals is described as usually attacking the sulcus behind the corona when due to decomposing smegma, as happens with a tight prepuce: we have "balanitis," when the glans is involved, and posthitis or balano-posthitis, when the structures behind the glans are inflamed.

Occasionally the disease becomes acute and generalizes, the whole body being covered with an acute red eruption, sometimes more or less moist and covered with dirty yellowish, abundant flakes.

Etiology.—Predisposition is in all probability closely concerned. It seems likely that seborrhœa is a more or less universally distributed condition, which is called into activity by lowered resistance of the individual. Seborrhœa certainly appears to be somewhat closely connected with gastro-intestinal disturbance and malnutrition. Locally, want of cleanliness and other sources of irritation may be concerned.

A specific pathogenic agent is possibly or probably the ultimate agent. While it is possible that seborrhœa of the scalp is symptomatic of the irritation of many different micro-organisms, there is not at present any convincing evidence of identification of any single one as sole or principal offender. There is some ground for thinking that the microbacillus of

Sabouraud may be chiefly responsible for the dry, and Unna's monococcus for the moist, eczematous forms of seborrhœa.

Diagnosis.—*Seborrhœa* is distinguished from *eczema* by its mild inflammatory character, which lacks the redness, infiltration, moisture, exudation, and itching, of the eczematous process. In psoriasis the scales are silvery white, on a reddened, infiltrated base, with sharply-defined edges, elbows and knees being characteristically involved. In seborrhœa, on the other hand, the scales are yellowish and do not extend to the edge of the patch ; on the scalp it is diffuse, and leads to alopecial thinning. The face, especially the forehead, is often involved in seborrhœa.

In *lupus erythematosus* the cells are dry, and in typical cases have epidermal follicular plugs projecting from the lower surface of the overlying crust. The scales are also more adherent ; they are situated on a patch with sharply-defined margin, and scarring is present. Ringworm is differentiated by the broken-off hairs and the presence of the fungus.

Treatment.—Attention to the general health is often required, such as regulation of the gastro-intestinal functions, outdoor exercise, bathing, and general hygiene. The author has found Turkish baths of the utmost value in treatment of any form of seborrhœa.

Locally, the first step is to clear away scales and crusts. In some cases it is necessary to soak with olive-oil, but as a rule vigorous washing with ordinary coal tar soap is sufficient. For the scalp it may be necessary to use a soft soap shampoo, with which some antiseptic may be usefully combined.* The frequency of washing is regulated by the rapidity of reproduction of the scales. Two or three times a week for a fortnight, and then once a week for the next few weeks, may be necessary. A good application is resorcin, 1 drachm to 6 ounces of rectified spirit of wine, with the addition of salicylic acid, 20 to 40 grains, should there be much scaling. Resorcin is apt to tint blonde hair, and lysol, 1 drachm, may be substituted. A more stimulating action

* ℞ Sapo mollis - - - - - - - ʒi.-iii.
Sp. vini methyl. - - - - - - ʒviii.
M. Ft. sap. liq.

to the growth of the hair may be obtained by adding tincture of cantharides, 2 to 6 drachms. Where ointments are desirable, sulphur and salicylic acid are perhaps the most generally useful. Useful remedies are—Sulphur sublimat (℥ss.-℥i. to the ounce of benzoated lard, or equal parts of vaseline and lanoline), or alternatively resorcin (gr. x. ad ℥i.), hydrargyri ammoniati (gr. x.-xv. ad ℥i.), cyllini (♏x. ad ℥i.), liquor carbonis detergens (℥i. ad ℥i.).

Seborrhœa of the body may be treated by washing and firm inunction of an ointment of 10 to 20 grains of sulphur to the ounce of zinc ointment. For the marginate seborrhœa of the flexures, groin, etc., a strong ointment of sulphur and salicylic acid, ½ to 1 drachm of each, may be used. Walker recommends pyrogallol, 1 drachm to the ounce, in the dry, scaly form on the scalp.

Prognosis.—Great patience is required, and treatment should be undertaken at the first recognition of the condition; otherwise premature baldness will certainly ensue, not to mention the acne, rosacea, and various seborrhœic dermatoses, which are closely associated with seborrhœa. The obstinacy to remedial measures and tendency to relapse must be borne in mind.

2. Milium.

Synonyms.—Grutum; Strophulus albidus; Acne albida.

Definition.—Small pearly white or yellowish papules consisting of sebaceous bodies just beneath the epidermis.

Symptomatology.—The lesions, met with chiefly in children and young adults, are of pin-head size, and can be felt slightly projecting from the surface. They are non-inflammatory and painless. They are most commonly found on the cheeks, but also on the forehead and other parts of the face. Not infrequently they undergo calcareous degeneration, and form the so-called "cutaneous calculi."

Pathology.—Probably a kind of retention cyst. The sebaceous core is enclosed in concentric layers of epithelial cells surrounded with a thin capsule. The ducts may be obliterated, and the sebaceous contents become inspissated and calcareous.

Treatment.—Incision and expulsion of contents. Electrolysis; calcareous nodules must be scraped out with lancet. Firm rubbing with green soap may remove milia in children.

3. Acne Vulgaris.

Synonyms.—Acne adolescentium; Pimples; Stonepock; Fr., Acné bouton; Ger., Finne.

Definition.—Common acne is an inflammatory affection of the sebaceous glands, chiefly in young people, associated with comedones ("blackheads"), and characterized by successive crops of pimples (papules and pustules) on the face and neck, less frequently on shoulders and chest.

Symptomatology.—Acne occurs for the most part between fifteen and thirty years of age. So common is it that few persons escape altogether. It varies in severity from a few fleeting papules to a chronic and disfiguring condition that may mar the happiness of a lifetime. If treated at the outset, all cases of acne may be regarded as curable, so that a thorough knowledge of this affection is of importance to the practitioner. The essential feature and starting-point of acne is the comedo, or small plug that blocks the orifice of the sebaceous or pilosebaceous duct. This plug may be simply a little greyish-yellow mass, or it may take the form of the hard, dark, projecting body known as the "blackhead." Whatever its degree of hardness, the comedo, once formed, dams up the sebaceous matter, which distends the ducts, and sooner or later sets up inflammation in the surrounding tissues (perifolliculitis). The resulting papules may disappear quickly and completely, or they may go on to suppuration and perifollicular inflammation of all degrees of severity. The pustules may be so superficial as to be opened up by the mere friction of a soft towel, or, on the other hand, they may lie deep in the corium, where they may form disfiguring nodules or deep-seated cystic abscesses of comparatively large size. The deeper abscesses are apt to leave scars of varying depth, owing to the destruction of glands and of subcutaneous tissues.

Acne has a characteristic and symmetrical distribution.

Its favourite sites are on the forehead, nose and cheeks, chin, lobes of ears, and nape of neck. Less often it is met with on the shoulders and chest. The author has noted extremely severe attacks in the last-mentioned region in bathers who have been exposed to the dual irritation of sea-water and of sun.

Varieties.—*Acne Vulgaris* or *Simplex* in its true form runs a mild course. There are sparse crops of papules or surface pustules spreading over a few months or years. It comes on at puberty, eventually disappearing without the formation of scars.

Acne Induratum.—In this form the malady runs a much severer course. The deep-seated inflammatory process results in red, firm, and often tender nodules, which may persist for years, and end in deep and extensive scarring, at times with bridge formation. In other instances these nodules calcify or shrink into firm rounded bodies from the size of a pea to an almond, freely movable beneath the skin. On the nape of the neck the mixture of scars and of hypertrophic nodules (a kind of keloid) presents the characteristic appearance known as *dermatitis papillaris capilitii.*

Acne Artificialis is applied to acne arising from the internal use of certain drugs, such as iodides or bromides, or to the external application of tar and other substances. The lesions due to iodine and bromide are indolent, tender nodules on the face and other acne sites. The actual presence of the drug has been demonstrated in the nodules, which are presumably due to direct irritation of the cutaneous glands. In that way a good illustration is afforded of the author's view of the origin of many symptomatic rashes by direct excretory irritation.*

Both iodide and bromide rashes may become hæmorrhagic, and may ulcerate, and even become fatal through exhaustion. Active hæmorrhage may take place concurrently from one or many of the mucous membranes of the body. Tar acne is probably mechanical in its origin, suppuration and other inflammatory complications being due to secondary bacterial

* "Excretory Irritation," Baillière, Tindall and Cox, London, 1897.

invasion. The tar eruption may affect the usual sites of acne, but is more commonly seen on the legs or other unusual situations. A similar rash is sometimes met with among workers in oil (machinery, etc.) on parts covered by clothes.

Acne Varioliformis is a much rarer condition, and differs from ordinary acne in various ways. Its course is extremely slow. Its favourite seat is the face and scalp, whence it may wander over the whole body, so that a few scar-leaving papules are always present. Another distinguishing feature is that the papule does not begin as a comedo. It is probably due to a specific staphylococcus. Some cases are attributed to syphilis, in which event other manifestations of the disease will be present. Sabouraud maintains that the " cocoon," or mass of epithelial cells and bacilli which is the starting-point of the comedo, forms the ultimate cause of *acne varioliformis*, as well as of simple acne.

Acne Cachecticorum is a chronic acneiform eruption, affecting chiefly the trunk and limbs of ill-nourished and scrofulous persons. The papules are flat, flabby, and livid in colour, varying in size from a pin's head to that of a lentil, with resulting pustules that leave minute scars. They resemble certain syphilides, but do not ulcerate.

Pathology and Etiology.—Acne is a disease of youth, and affects both sexes equally. It may occur in persons who are otherwise apparently healthy, although it is aggravated by errors of diet as well as by digestive and other disturbances. In most cases, however, the skin almost always has a greasy look, and is found on careful examination to be more or less flabby and anæmic. The fact that the disease sometimes runs a severe course in an apparently robust person may be due to a lessened resistance to the peculiar micro-organisms with which he has been primarily or secondarily infected. Or there may be a greater virulence, original or acquired, of the invading organisms.

The pathological starting-point of *a. vulgaris* is the comedo, a minute oat-shaped body which blocks the sebaceous duct with a mass of retained secretion that can be squeezed out between the finger-nails, and is popularly spoken of as a " worm."

According to Sabouraud, the comedo results from a hyperkeratosis of the mouth of the sebaceous duct due to the invasion of the microbacillus first described by Unna, and independently by Sabouraud and Gilchrist, the latter of whom named it the "bacillus acnei." Sabouraud was the first to describe the little yellowish masses, or "cocoons," found in the mouths of the ducts. These cocoons contain vast numbers of the specific micro-organisms, and a few of them develop into the oat-shaped body known as the "comedo," "composed of concentric layers of horny cells arranged like the scales of an onion" (Norman Walker).

The bacteriology of acne is still unsettled. The generally accepted view is that much of the disturbance is due to the acne bacilli in the first place, and later to the invasion by various pyogenic cocci, of which the *Staphylococcus albus* is answerable for most of the inflammatory mischief, both primary and secondary. The invasion of the duct by the microbacilli sets up a hyperkeratosis, which, according to Whitfield, is a hypertrophy of the lining epithelium in the effort to encapsulate the irritant organisms. It is only when pyogenic cocci are present in the comedo that pustulation occurs. The microbacilli are now usually regarded as identical with those of seborrhœa, hence the dictum, "No seborrhœa no acne," although there may, of course, be seborrhœa without acne. In tar acne the pilo-sebaceous duct has been plugged by an artificial comedo, so to speak, of tar, which probably combines an irritant chemical and mechanical action. In bromide and iodide acne we have a direct inflammatory stimulation of the sebaceous gland by the excretion of an irritant drug which has actually been found *in situ*.

The earlier writers upon dermatology regarded acne as chiefly due to two causes—namely, the increased development of hair at puberty, and the mechanical influence of dust in producing the comedo. It would be unwise to ignore this so-called "physiological acne." The selective sites of common acne are those in which the hair has become a more or less degenerate structure, while there has not been a corresponding decrease in the size of the associated sebaceous gland. In

other words, there is a relatively large gland with a fine lanugo hair, either of which may receive an impetus of growth at puberty, with the resulting irritation and obstruction that pave the way to bacterial invasion.

Many authorities believe in the relationship of seborrhœa to *acne vulgaris*, although they may not be all inclined to go as far as Sabouraud, who ascribes *acne vulgaris*, *alopecia areata*, and seborrhœa, to a single micro-organism.

Predisposing and Exciting Factors.—Puberty and probably obscure conditions of decreased individual resistance to various specific pathogenic organisms. The most important are, probably, digestive disturbances, such as gastric dyspepsia or constipation. Weak circulation, anæmia, dusty occupations, seborrhœa, and bad personal habits, may contribute. In this connection it is worth noting that Gilchrist boldly reverses the general position, and ascribes the anæmia, constipation, headache, slow pulse, and other concomitant signs and symptoms to toxic absorption of products of the organisms of acne. He supports his position by the observation that the bacilli are agglutinated by the blood-serum of the patient. The state of the surface circulation, in the author's opinion, to a great extent determines the severity and the duration of an attack. A weak pulse and pasty complexion are constantly associated with acne, and it is clear that bacteria invasions are more likely to maintain a foothold in a skin unprovided with a full supply of healthy blood. In cases associated with chronic constipation an inadequate surface circulation may well be associated with myocardial weakness, due to the action of the bowel toxins and the general capillary anæmia, the whole forming an excellent example of the vicious circle. In a surprising number of cases of severe acne recently noted valvular murmurs or other serious circulatory disorders have been present, notably in some deeply-scarring cases.

Diagnosis.—The presence of a slow follicular rash on the face or shoulders of young persons associated with comedones makes the diagnosis as a rule extremely simple. Nevertheless, the disease has been mistaken for the papular stage of smallpox, an error readily avoided by the use of the thermometer.

More common is the confusion of simple acne with a papular syphilide. In one case a patient at an eye hospital had a rash that looked like typical acne, but proved on further examination to be connected with headache, anæmia, a frontal node, loss of hair, and other signs of specific infection. In any obstinate papular and pustular condition of face not obviously connected with the pilo-sebaceous follicles, it would be well to exclude (*a*) drugs, (*b*) syphilis, (*c*) tuberculosis. In *acne rosacea* the papules and pustules, when present, are usually confined sharply to the nose and flush areas of the cheeks, and are associated with hyperæmia and dilated venules, but both *acne vulgaris* and *acne rosacea* may be found together on the same patient. *Sycosis* affects chiefly the beard region of males, and attacks hair follicles rather than sebaceous glands ; it forms pustules, each pierced by a hair, and is accompanied by more or less crusting, and often by deeply-seated nodules.

Treatment—*General.*—The chief indication is to attend to the digestion, and to remedy such defects as constipation and anæmia, especially in girls. As an all-round remedy there is nothing better than the old-fashioned formula :

℞	Magnesii sulphat. - - - -	ʒi.
	Ferri sulph. - - - - -	gr. i.-ii.
	Ac. sulph. dil. - - - - -	♏ v.
	Aq. menth. pip. - - - - -	ʒi.

Mitte tales ad ʒviii. Sign. : One-eighth to be taken in half a tumblerful of cold water half an hour before breakfast.

The teeth should be attended to, and, bearing in mind the probable relationship of seborrhœa, the scalp systematically washed with a good antiseptic soap. Open-air exercise is necessary, and Turkish baths desirable. The face may be washed with an antiseptic soap, or, better still, with plain warm water, and rubbed dry with a soft Turkey towel.

The daily expression of comedones is a matter of first importance. The patient should stand in a good light before a mirror, and squeeze out the " blackheads " between the finger-nails, which should be placed at a little distance on each side of the plug. If the comedones are very tight and

hard, the skin may be steamed or softened by prolonged sponging with hot water. With a little practice the required dexterity may be acquired. Any subsequent bleeding or pain or swelling may be quickly subdued by bathing with hot water. Should the finger-nails not be equal to the task, the patient may use a comedo extractor or a watchkey. In severe cases the medical attendant will have to go over the whole face systematically, removing comedones, puncturing or curetting pustules and abscesses, and applying pure carbolic acid with a pointed wooden match to the evacuated cavities. Under such circumstances the only hope of avoiding hopeless disfigurement lies in prompt and thorough surgical attention.

External Drug Treatment.—Fortunately, the majority of cases recover completely under simple external treatment. So far as soap is concerned, any good coal tar or other antiseptic soap may be used. Or the latter, if a sulphur soap, which may be combined with camphor and resorcin, as in one of Eichoff's preparations, may be applied with a soft brush, and washed off after a few minutes. Where the comedones are hard, the occasional use of a sand soap is often beneficial. Ichthyol is warmly advocated by some authorities. It is applied externally in the form of an ointment (20 per cent.), and internally in the form of capsules (5 grains).

An excellent plan is to touch the tops of papules and pustules lightly with the end of a wooden match dipped in pure carbolic acid. Pustules should be first evacuated, and it is well to dip a needle in the acid and pass it into the emptied follicle.

Sulphur is the drug *par excellence* in the treatment of acne. Vleminx's solution is one of its forms that is becoming popular. This preparation should be painted over the affected skin with a camel-hair brush five or six days in succession, and repeated after an interval, according to results. Apart from its disagreeable smell, the application has a fine stimulant and antiseptic action. It is apt to irritate some skins, and may be diluted in that case with water (1 to 3 or 6), and it should in any case be discontinued as soon as there is any sign of

dermatitis. Sulphur may be also applied in the form of ointment or lotion. A good formula is—

℞ Sulphuris loti - - - - - gr. xx.
Hydrarg. bisulph. - - - - gr. x.
Vaselini } - - - - - - āā ʒss.
Lanolini }

Ft. ung. Sign.: To be rubbed in for ten minutes at night, and washed off with warm water in the morning.

A good lotion, especially where there is much inflammation, is—

℞ Sulph. sublimat. - - - - ʒii.
Calaminæ - - - - - ʒiii.
Glycerini - - - - - ʒiv.
Ac. boracis - - - - - gr. xxx.
Aq. destill. - - - - - ad ʒviii.

"Agita phialum." Misce; fiat lotio. Sign.: To be applied to the affected surface with a brush or pledget of wool.

Other good drugs are β-naphthol (1 or 2 per cent.), resorcin (gr. x. ad ʒi.), or corrosive sublimate (gr. i.-iii. ad ʒi.).

A method much in vogue in France is to "shell off" the skin with resorcin paste or varnish. The patient is kept in the house, and the face is covered continuously with a paste consisting of equal parts of resorcin and Unna's zinc paste for four or five days. A soothing ointment is then applied, and in a few days the skin desquamates in large flakes. The treatment is somewhat heroic, but the author has secured excellent results therewith in several severe cases.

Another modern method is that of vaccine-therapy. The general idea is to increase the individual resistance of the patient against the particular pathogenic organisms with which he is infected. The best results are from vaccines which have been prepared from cultures of microbes taken from the patient himself. That plan, however, is too costly for ordinary work, especially when dealing with patients of the hospital class. Fortunately, the use of a polyvalent vaccine (prepared from cultures of *Staphylococcus albus*, *aureus*, and *citreus*) in the majority of cases answers sufficiently well, especially where there is much pustulation.

Where the chief feature is comedones and papules, an acne bacillus vaccine is indicated. A mixed vaccine of 200 million staphylococci and 8 million acne bacilli per cubic centimetre may be tried. Apart from bacteriological examination it is often impossible to say whether the bacillus or the coccus is dominant. An average initial dose is about ½ c.c. of the mixed vaccine, given subcutaneously with aseptic precautions, and carefully watched, increasing afterwards to 1 c.c. The results of vaccine treatment are variable.

The author is not alone in having found the results of Wright's vaccine treatment of acne vulgaris disappointing. In view of the occasional brilliant results, it seems impossible to doubt the soundness of this method. Perhaps the failure may be attributed to the inadequacy of the surface circulation, whereby the local action of the vaccine is hampered. Clearly, it is of little use to charge the blood with a therapeutic vaccine unless means are taken to secure its free access to the pathological skin on which it is intended to act. To strengthen the general circulation and to determine a local flush of blood, therefore, seem to be rational aids to the success of the vaccine-therapy of acne. Wright himself has recognized the desirability of stimulating the local circulation in some cases when giving the vaccine.

Brewer's yeast is sometimes useful in *acne vulgaris;* it is given in teaspoonful doses of the fresh preparation beaten up in a little water thrice daily. The active principles of yeast are given in various forms, such as ceridin or levurin.

Arsenic has nowadays little place in the treatment of acne, although formerly it was extensively used for that purpose. Atoxyl is said to be useful in some cases.

As regards diet, the food should be plain and simple, and it is customary to forbid sweet articles, pastry, cheese, and pickles. Generally speaking, the patient should avoid anything that makes the face flush. Beer and malted liquors generally are harmful, and it is better to abstain from alcohol as far as possible.

Lastly, the application of the X rays and of the high-frequency electrical currents have sometimes an excellent effect in obstinate cases.

Prognosis.—A cure may be anticipated in all cases where a patient will carry out proper treatment. Unfortunately, there is a popular tendency to look upon acne as a complaint that needs no particular care, and to think that the patient will " grow out of it " in the process of time. Although, as a matter of fact, self-cure takes place in many attacks, it is none the less true that the resulting damage to the appearance of the patient may be irretrievable in neglected cases. In girls, for instance, a bad acne may spoil the chance of marriage, while in young men it may turn the scale in the competition for some coveted post. In any rank of life a disfigured face must be the source of continual mortification.

4. Rosacea or Acne Rosacea.

Definition.—Rosacea, or rosaceous acne, is a chronic erythematous disease affecting the face, especially the nose and cheeks, characterized by redness, and dilated vessels usually associated with papules and pustules, sometimes with hypertrophy.

Symptomatology.—Rosacea appears first as a transient redness of the nose or cheeks of adults. This transient stage may be definitely connected with dyspepsia or exposure to cold weather. It may then run on into any of the following conditions :

1. *Stage of Hyperæmia.*—There is a chronic redness of the nose only, or of nose and cheeks. The stage is one of passive congestion, with more or less oily seborrhœa. The nose is cool to the touch, and the margin of the redness shades off gradually into the neighbouring healthy skin.

2. *Stage of Telangiectasis.*—Marked by permanently dilated capillaries. Papules and pustules, even nodules, appear sooner or later if the process be not arrested.

3. *Stage of Hypertrophy.*—This stage is fortunately rare ; the subcutaneous connective tissue undergoes hypertrophy, and may end in large crimson, lobulated, and even pendulous tumours of the nose (rhinophyma), which are most disfiguring.

There are few subjective symptoms beyond slight sense of heat and burning at times.

Etiology and Pathology.—This affection was formerly looked upon as a form of acne, but dermatologists are abandoning the term *acne rosacea*, and calling it simply *rosacea*. In acne the primary lesion is the papule or pustule starting around the comedo, whereas in *rosacea* the papule or pustule is secondary to the erythema, and may arise independently of the glands and follicles. At the same time it should be carefully noted that many authorities agree with Unna and Sabouraud that seborrhœa is probably the starting-point of both conditions.

Other writers attribute rosacea to a reflex nervous origin. Whatever the exact relationship to the eruption may be, it is clearly associated in a large proportion of cases with digestive troubles. Another large group of cases is associated with uterine disturbances, and not a few appear for the first time at the climacteric. The disease does not appear as a rule before twenty-five or thirty years of age. Slight attacks are more frequent amongst women, but the severe hypertrophic forms are met with chiefly amongst men. Alcohol is a common cause of rosacea (grog blossom), but extreme cases often occur amongst those who never touch alcohol. Tea, or anything that causes the face to flush, predisposes to the disease. Prolonged exposure in the open air is a powerful factor in the production. Typical bad cases may be seen in cabmen, where the action of alcohol often aids the vicissitudes of weather in producing a purple "seaweed" tangle of dilated vessels over the face.

There is good reason to suspect that the absorption of toxins from the digestive tract, such as the mouth, stomach, or intestine, may be an important contributory cause, both directly on the capillaries and indirectly by weakening the heart muscle and setting up anæmia or rosacea. In the author's opinion, the disease is symptomatic of a variety of causes. It is clear that internal reflex causes may cause flushing of the face, as happens with tea, alcohol, and some forms of indigestion. It is equally clear that external irritants, such as exposure to extremes of weather, may produce a similar

result. Nor can one seriously question the connection between seborrhœa and rosacea. Rosacea appears to be a symptomatic rash of varying degrees of severity, brought about in predisposed persons by complex causes, internal and external. Some authorities regard rhinophyma as a distinct disease.

In many cases of chronic rosacea that have come under my observation I have found valvular disease of the heart. Many such cases coming to hospital are those of middle-aged cooks, who have been exposed to the heat of the kitchen fire for many years without developing rosacea. The stethoscope time after time reveals valvular disease. The association of the two conditions has been noted so often that it seems unlikely to be a mere coincidence. My own view is that the disturbed balance of the surface circulation due to the cardiac defect deprives the skin of its previous power of normal or healthy reaction against the traumatism of the kitchen fire. Clearly, the valvular lesion may have existed for a long time previous to the development of the rosacea, in which case I regard the latter as a delicate symptom of failing compensation, or the valvular lesion may be of recent origin, due perhaps to influenza. In a fair proportion of these cases there was a family or personal history of rheumatism. Sometimes myocardial weakness has been present. Before leaving this subject, it may be pointed out that reflex action may be concerned in this rosacea as well as abnormal cutaneous circulation.

Diagnosis.—The distribution on middle of face, the age, the dilated capillaries, and the hyperæmia, distinguished *rosacea* from *acne vulgaris*. The hypertrophic forms never ulcerate, a fact that, together with absence of other specific signs and symptoms, distinguishes it from tubercular syphilides.

Treatment—*General.*—No disease requires more careful and systematic investigation, especially of the digestive system. The state of the teeth, the digestion, and the regularity of the bowels, should be attended to. Leucorrhœa and menstrual troubles demand treatment. As regards diet, a good rule is to avoid tea, alcohol, and any food that causes

the face to flush. Some advise a vegetarian diet for a time Residence at a spa is sometimes beneficial. Ichthyol is now and then of service, given internally (10 minims) in capsules. The main treatment is local. One of the best drugs is sulphur, which may be applied nightly in the form of a red ointment:

℞ Sulph. sublimat. - - - - gr. xv.
Hydrarg. sulphuret. - - - - gr. x.
Vaselini - - - - - - ℥i.

Sig.: To be applied lightly at night, and washed off with warm water in the morning.

Resorcin (10 grains to 1 ounce) is also useful. Calamine may be added in the same proportion. Ichthyol may be applied in a 30 per cent. ointment, or be painted on twice daily, diluted with an equal quantity of water. A lotion of sulphur may be preferred, or in obstinate cases Vleminx's solution may be painted on daily, at first diluted with four times its bulk of water, then increasing gradually to full strength. Both this solution and ichthyol should be stopped when the skin shows signs of irritation and begins to desquamate. The continuous application of mercurial plasters is sometimes of benefit.

Papules may be treated with pure carbolic acid, and pustules freely opened up and similarly treated. If more severe, the parts may be curetted. In some instances the skin can be "shelled off" with resorcin. This treatment involves confinement to the house.

Telangiectasis requires radical measures. The most generally applicable is electrolysis, the needle being attached to the negative pole of the battery, and numerous punctures being made, both in the dilated vessels individually and over the hyperæmic areas generally. Or a fine-pointed actual cautery may be used. Some scarify with a lancet, with multiple, closely-set, parallel cross-incisions.

Rhinophyma, or bottle-nose, is treated by shaving off the redundant tissues; this is followed by smart bleeding at the time, but the results are usually excellent.

5. Folliculitis Decalvans.

Synonyms.—Quinquaud's disease; Alopecia folliculitis; Pseudo-alopecia areata; Fr., Périfolliculites décalvantes.

Definition.—A pustular discrete inflammation of the scalp (and less frequently of the beard), ending in small irregular patches of permanent baldness.

Symptoms.—The inflammatory process involves the follicles and neighbouring tissues. The pin-head papules and pustules are usually pierced by hairs that fall out or can be pulled out readily. The process ends in thin white scars, resembling those of lupoid sycosis, with which the disease described by Quinquad is closely allied. It is sometimes called *cicatricial alopecia*. *Pseudo-alopecia areata* appears to be a group of suppurating follicles.

Etiology and Pathology.—The process is a folliculitis with perifolliculitis, due to coccic invasion, and followed by cicatricial changes. In one extreme chronic and relapsing case which involved the whisker region and scalp in a girl of ten years of age under my care, the *Bacillus pseudo-diphtheriæ* was obtained in culture.

Diagnosis.—Alopecia areata shows neither inflammation, pustules, nor scarring.

Treatment.—The spots may be treated with tincture of iodine or pure carbolic acid, followed by lotions or ointments of sulphur, resorcin, or various antiseptics.

Prognosis.—Good as regards the disease, but the patches, of course, remain permanently bald.

6. Sycosis.

Synonyms.—Mentagra; Sycosis non-parasitica (so-called); Sycosis coccogenous; Folliculitis barbæ.

Definition.—A chronic inflammatory disease of the hair follicles in the beard region, due to staphylococcic infection, characterized by discrete papules and pustules perforated by hairs, and ending in more or less destruction of hair follicles and localized scarring.

Symptoms.—The disease usually begins in the bearded regions of the face, especially the cheeks and less often the upper lip, in which case it is invariably connected with nasal catarrh. Numerous papules appear, each pierced by a hair, crowded together into patches of varying size. Pustules follow, and the central hair can then be readily extracted. The disease spreads at its edges, and sometimes produces nodules; the pustules may coalesce and form crusts. It is extremely chronic and intractable to treatment, and has a marked tendency to recur again and again over many years. In rare instances it involves the eyelids and eyebrows, or even the armpits and pubes. There is moderate itching and burning, and the skin round the inflamed follicles is red and infiltrated. The malady is most disfiguring, and may cause great mental anguish, and has even led to insanity.

Etiology.—The disease is necessarily confined to men, and a special predisposition is almost certainly concerned. The cause is a coccogenic infection, in the majority of instances due to invasion of the follicles by the *Staphylococcus pyogenes albus*, and in a large number of instances it is conveyed by an infected razor, or more usually by an infected shaving-brush, in the barber's shop. The importance of identification of the specific pathogenic organism and of its origin is important, as many legal actions for damages have now been won against barbers. In sycosis of the upper lip the infection comes from chronic nasal discharges.

Pathology.—The disease begins as a folliculitis, with subsequent perifolliculitis and suppuration, and is due to invasion by pyogenic cocci.

Diagnosis.—In ringworm of the beard (*tinea sycosis*) the hairs break off, and are readily extracted from the first. The course is rapid, the moustache rarely involved, and the microscope shows the distinctive fungus. In eczema the process is not strictly confined to the follicles and the beard region; there is serous discharge and more itching, and the hairs are not readily pulled out. In syphilis, papules and pustules (and other signs of the malady) are found elsewhere on the body.

Treatment.—This is often unsatisfactory. Loose hairs should be systematically extracted from the pustules. The beard should be closely clipped with scissors, or shaved every second or third day. Local treatment is of first importance. Acute symptoms should be allayed with soothing applications, and any crusts removed by soaking in oil and washing off with soap and warm water. Lassar's paste, diachylon ointment, sulphur, salicylic acid, bichloride of mercury (1 in 1,000), black wash, oleate of mercury (2 per cent. ointment), and other antiseptics, should be applied, if possible, continuously. Sulphur and resorcin ointments (10 to 20 per cent.) are useful, and then oleate of mercury (2 to 10 per cent.). A good ointment is—

℞ Hydrarg. sulph. rub. - - - - gr. x.
Sulph. sublimat. - - - - gr. xl.
Ac. carbol. pur. - - - - - ℥ xx.
Lanolini \
Vaselini / - - - - - - āā ʒss.

M. Ft. ung.

In applying ointments, it is well to dust over the parts with novoform, dermatol, or boracic acid. The ointment should be spread thickly on lint, the part next the skin covered with butter muslin, and the outside closed in with oilsilk or other grease-proof material. It should be worn day and night, and kept in position with a bandage. Lotions should also be applied continuously under oilsilk when a poulticing action is desired.

X-ray treatment answers well in a certain number of cases, and in obstinate attacks should certainly be tried. Ionization sometimes succeeds.

The injection of a vaccine (sterilized culture of staphylococci) sometimes effects a brilliant cure, but in other instances is disappointing. A good plan is to use a polyvalent mixture of several strains of cocci, as the *albus*, *aureus*, and *citreus*. The more scientific plan is to use a culture obtained from the patient himself. This, however, is necessarily a costly process.

Needless to say, careful attention should be given to the general health.

Prognosis should be guarded. The disease is in all cases curable, but it is often most rebellious to treatment, and liable to relapses.

7. Molluscum Contagiosum.

Definition.—A mild chronic eruption of the skin characterized by waxy epithelial tumours with a central umbilication, in size from a pea upwards, but rarely larger than a hazelnut.

FIG. 6.—MOLLUSCUM CONTAGIOSUM : UNUSUAL POSITION IN BOY OF FOURTEEN : ONE GROWTH INFLAMED.
(Dr. Norman Meachen's case.)

Symptomatology.—Molluscum contagiosum may occur in either sex, although it is common in children. It is painless, and appears as one or two little globular tumours, which grow in size from a pin-head to that of a pea. They have a pearly white or waxy hue. At their top is a depression or umbilication, with a minute central opening through which in the older growths a yellowish cheesy material can be squeezed by firm pressure.

The incubation period is slow, and the growths may persist for an indefinite period if untreated. They tend, however, to disappear without scarring. Occasionally they inflame and suppurate. They are usually few in number, although now and then they may be numerous and generalized. At times they are widely scattered, while at others they are grouped, but in the latter case each tumour keeps its individual shape. Their most common site is on the face and eyelids, and they are less frequently found on the breasts, genitals, and limbs. In rare cases they grow to the size of a Tangerine orange, and on the hands have been mistaken for cartilaginous tumours.

Etiology and Pathology.—The disease is undoubtedly contagious. The writer once had the material of a molluscum body inoculated in his forearm with a cataract knife, and developed numerous characteristic tumours some months later. Infectiveness, however, is mild. It seems to be commonly spread at Turkish and swimming baths.

Anatomically the process attacks the prickle-cell layer of the epidermis. This is pushed into the corium ; a delicate fibrous capsule is formed, lined with a single layer of palisade cells, while within is a dense epithelial overgrowth, in the centre of which are the larger oval cells known as the " molluscum bodies." The latter used to be regarded as belonging to the protozoa, but it is now generally agreed that they are epithelial cells of the rete that have undergone hyaline degeneration. The general appearance of a microscopic section suggests that of a sebaceous gland, but the centre contains oval bodies instead of sebaceous material. The actual cause of the disease is still unknown, but there seems little doubt that it will be one day traced to a specific micro-organism. Shattuck has observed the characteristic lesions in sparrows and other birds, and Colcott Fox has reported it in chickens.

Diagnosis.—The characteristic waxy, umbilicated growths are not likely to be confused with any other affections of the skin.

Prognosis.—Speedy recovery may be anticipated under proper treatment.

Treatment.—The simplest plan is to snip off any pendulous tumours with scissors. In ordinary cases an incision should be made through the tumour, its contents expressed, and the cavity touched with pure carbolic acid. Or it may be enough simply to squeeze the ripe tumour and insert a little carbolic acid on the pointed end of a wooden match. In children an anæsthetic may be required. The tumours disappear rapidly under the action of the X rays.

8. **Keratosis Pilaris.**

Synonyms.—Pityriasis pilaris ; Lichen pilaris ; Ichthyosis vel hyperkeratosis follicularis ; Xeroderma ; Fr., Xérodermie pilaire.

Definition.—A dry, scaly condition of the skin characterized by pin-head, conical, pale epidermal papules at the orifices of the pilo-sebaceous ducts.

Symptoms.—This condition is described by many authors as a mild ichthyosis. It is, however, more definitely associated with the hair follicles. The small projecting papules often contain an imprisoned hair, which may be seen as a black dot or coiled into a tiny circle. It is most characteristically seen on the extensor surfaces of the limbs, where it suggests a permanent " goose-flesh," and feels somewhat like a nutmeg-grater to the touch. In one case under my care a marked general condition of dry skin and keratosis pilaris was complicated with scattered itching red papules and a few circinate, superficial, faintly-scaled patches on loins and buttocks. There was no trace of syphilis, and the patient was otherwise in good health—apart from constipation. He was about nineteen years of age, and the skin was practically hairless. Under treatment with hot baths, simple ointment, aperients, and thyroid gland in small doses, he improved rapidly. Some authors connect keratosis pilaris with constipation, due to the action of a circulating toxin upon the sebaceous bloodvessels, and secondarily on the hair follicles and glands (excretory irritation). I have noted the condition commonly in patients suffering from heart disease.

Etiology.—The want of washing appears to be concerned in some cases. It occurs chiefly in early adult life. It appears to be a condition of defective nutrition of the pilo-sebaceous system, accompanied with parakeratosis, possibly due to obscure toxic or microbic action or malnutrition from defective surface circulation.

Diagnosis.—Its pale colour, permanency, and characteristic situation, distinguish keratosis pilaris from "goose-flesh" and the miliary papular syphiloderm.

Treatment.—Hot baths; inunction; Turkish and superheated-air baths; thyroid gland internally.

Prognosis.—Favourable.

9. Keratosis Follicularis.

Synonyms.—Darier's disease; Ichthyosis sebacea cornea (Wilson); Psorospermosis; Fr., Acné sebacée cornée.

Definition.—A rare chronic disease of the skin characterized by the discharge of cheesy matter from the sebaceous follicles, and more or less papillary overgrowth.

NOTE.—The disease was originally described by Erasmus Wilson.

Symptomatology.—The affection usually begins in youth, mostly on scalp, face, hands, and feet, but any part of the body may be attacked. At first brownish crusts are seen, which are found on removal to be connected with soft cheesy plugs dipping into the pilo-sebaceous ducts, from which more soft matter can be squeezed. The follicles are the seat of reddish papules, which may become confluent and yield a profuse, highly offensive discharge. The disease is slowly progressive, but does not impair the general health.

Etiology and Pathology.—The ultimate cause is unknown. Males are more commonly affected than females. Psorosperms were formerly supposed to be the cause of the disease, but the bodies in question are now generally regarded as epithelial cells that have undergone some form of degeneration.

The so-called "psorosperms" are round or oval highly refracting bodies found in the sebum of the follicle.

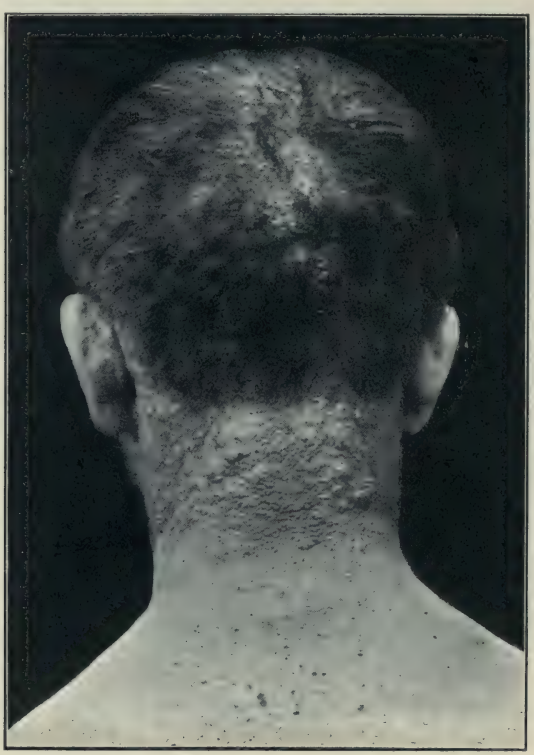

FIG. 7.—DARIER'S DISEASE.
(Dr. Stopford Taylor's case.)

Treatment is most unsatisfactory. Salicylic acid and various antiseptics, with green soap, have been advocated.

10. Adenoma Sebaceum.

This is a condition practically confined to the face, characterized by the formation of small, pale, pinkish or red nodules projecting from the skin. It is nearly always congenital.

At first the growths appear to be glandular, possibly arising from survivals of embryonic structures in the skin, but later they seem to undergo various fibrous and vascular changes. At any rate, I have seen sections in which no trace of glandular structure could be distinguished. Treatment is best conducted by means of electrolysis or carbon dioxide snow.

11. Sebaceous Cyst.

Synonyms.—Steatoma; Wen; Atheroma; Ger., Balggeschwulst.

Definition.—This is a retention cyst caused by the gradual distension of a sebaceous cyst by its own secretion.

Symptomatology.—The lesions may be single or less often multiple, and are found most often on the scalp, face, back, and trunk generally. They cause no pain, and grow steadily, varying in size from a millet-seed up to that of a hen's egg. The overlying skin is normal in colour, or may become bluish and tense owing to pressure of the tumour. The contents of the cyst are of a yellowish colour and thick cheesy consistence. Sometimes the duct of the gland is not obliterated, and by firm pressure the contents can be squeezed out in a long thin ribbon. At times the cyst inflames and forms an abscess.

Diagnosis.—The *sebaceous cyst* is known from *fatty tumour* by the latter being rare on the scalp, and being lobulated and freely movable. The *syphilitic gumma* is of more rapid growth, and tends to break down rapidly and ulcerate deeply.

Treatment.—Incise and carefully dissect out the wall of the cyst. If any portion of the latter be left behind, it is apt to form a fresh cyst.

CLASS V

DISORDERS OF THE SUDORIFEROUS GLANDS

1. Hyperidrosis.

Synonyms.—Ephidrosis ; Excessive sweating ; Polyidrosis.

Definition.—A functional disorder of the sweat glands characterized by excessive secretion of sweat, which may be either (*a*) general or (*b*) local.

(*a*) General sweating may be physiological—for instance, upon exercise or taking a Turkish bath. It may be excited by drugs, as pilocarpine. Pathologically it occurs towards the end of fevers as a " critical sweat." It is often symptomatic of septic processes, as in consumption, and is due, in the author's opinion, to the excretion of some irritant, possibly tuberculin, and consequent direct irritation of the sweat glands. It is possible that some toxins act directly upon the sweat centre in the medulla. General sweating may also be due to mental emotion, as in the " cold sweat " of fear. Something of a somewhat similar kind occurs in exophthalmic goitre.

(*b*) Local sweating is met with chiefly in the axillæ, perineum, soles, and palms. It may be due to nervous influence, especially when unilateral or confined to the region of a single nerve—*e.g.*, the fifth or trifacial nerve. At times the palms or soles may drip with moisture, and the skin become macerated and the surface epidermis shed, leaving a raw and tender surface. The sweat in simple ephidrosis is unaltered ; it is sometimes complicated by smell (bromidrosis) and colour (chromidrosis).

Etiology.—The irritation of the sweat glands may be due to the action of some general stimulant circulating in the blood, and this may be of the nature of a drug, a toxin, and

so on, acting either directly on the glands or indirectly through the agency of the nervous system; that is to say, either local or general hyperidrosis may result from a central or peripheral neurosis. There may be sweating by direct action of the nerve endings on the gland, as in cold sweat without flushing of the skin. In some marked cases of sweating of hands and feet the author has found heart disease.

Treatment.—In pathological general sweating some relief may be obtained from the administration of agaricin ($\frac{1}{6}$ grain) sulphate of atropia ($\frac{1}{120}$-$\frac{1}{80}$ grain hypodermically). Sulphur and ergot have been recommended.

Locally belladonna is the most promising drug, in the form either of ointment or liniment. It is a good plan to order daily washing with a good antiseptic soap, and to keep the parts dusted with a powder composed of salicylic acid (30 grains), boracic acid (2 drachms), starch and powdered talc (of each 1 ounce). This powder can be dusted well into the socks in the case of perspiring feet. In dealing with the feet, diachylon ointment is sometimes effectual. It should be spread on strips of lint, and renewed daily after the feet have been well washed with warm water and carefully dried. The X rays have been found useful by Pirie and others in certain cases of localized sweating when all other remedies have failed.

Prognosis.—It is best to be guarded in cases of local sweating.

2. Anidrosis.

Definition.—A symptomatic condition in which there is absence of sweat either local or general. (More commonly used to indicate diminution, or oligodrosis.)

Etiology.—It occurs in connection with various morbid conditions of the skin, as ichthyosis, psoriasis, chronic eczema, and various cutaneous atrophies. It may be general or local. The latter may be met with as a passing phase of nervous trouble—*e.g.*, neuralgia or some forms of paralysis. The general condition may occur along with chronic Bright's disease, which it may perhaps have to some extent originated.

Treatment.—Stimulation of the sweat function by Turkish and hot-water baths, massage, and so on. Internally jaborandi (or pilocarpine). The author has found good results from inunction with a bland ointment, the superheated-air bath, and the internal administration of thyroid gland.

3. Bromidrosis (Offensive Sweating, Osmidrosis).

Bromidrosis is usually associated with hyperidrosis. The odour may resemble new-mown hay (pyæmia) or vary from an agreeable scent to the most offensive stench. It is characteristic in rheumatic fever, in uræmia, scurvy, and some other general conditions. However, it is usually local; it may sometimes be due to drugs, as sulphur and thallium. Locally it may be due to infection of sweat glands, especially in axilla, perineum, groin, and feet, by organisms such as the *Bacillus fœtidus, dermatophyton*, or by a *Tinea cruris*, or there may be decomposition of sweat, with production of fatty acids. Treatment consists of scrupulous cleanliness, washing with antiseptic soaps, and dusting with antiseptic powders.

Bathing with warm, dilute formalin lotions will often relieve the condition materially, and should be followed by the application of a dusting-powder.

4. Chromidrosis.

This is a rare functional affection of sweat glands characterized by sweat usually of a blue, but sometimes of a red, green, yellow, or even black, colour. In many instances it occurs in young women, and appears to be a true neurosis. It is usually local and symmetrical, and affects most commonly the eyelids, next the cheeks, forehead, sides of neck and body, in young women.

Coloured sweat may result from the administration of copper (green) or of iron (blue). In the axillæ, the sweat after secretion is apparently stained red in some persons by a bacillus (*lepothrix*) found in concretions attached to the hair shafts.

Bloody sweat (hæmatidrosis) is due to actual hæmorrhage through the sweat glands. It may occur as the result of great mental emotion, or apparently by way of vicarious menstruation.

Phosphorescent sweat is said to be caused by phosphorescent bacteria, usually after eating phosphorescent fish.

In all cases of chromidrosis the possibility of deception should be borne in mind.

Treatment should be directed to the removal of the cause, to the use of tonics, the treatment of nervous and other general conditions, and the use locally of astringent lotions and powders.

5. Uridrosis (Excretion of Urea through the Sweat Glands).

In this condition there is an ammoniacal smell, and the urea may sometimes be seen as a whitish deposit on the skin, as in suppression of urine occurring in the course of Bright's disease. Treatment is directed to the relief of the underlying renal condition.

6. Sudamina.

Synonym.—Miliaria crystallina.

Definition.—A non-inflammatory functional disorder of sweat glands characterized by a crop of minute vesicles, which are small cysts in the epidermis due to obstruction of sweat ducts.

Symptomatology.—The crystalline form of rash appears most commonly on the chest and belly, but may appear on any part of the body where there are sweat glands. The vesicles appear rapidly, usually with slight itching, looking like dew upon the skin (Jamieson). They dry up in a few days, and are followed by fine brawny desquamation. The vesicles do not break ; they simply dry up, thus distinguishing sudamina from eczema. They are apt to occur in children and in debilitated persons, and in febrile disorders, as in acute rheumatism, enteric fever, and so on. The thermometer will speedily settle any doubt.

Red miliaria is another form in which the vesicles are surrounded with a red zone; later it becomes turbid, or pustular, and usually comes in successive crops.

Treatment.—Dusting-powders containing oxide of zinc, bismuth subnitrate, and starch, are usually enough for the crystalline form. Bran baths are required in addition for the red miliary form.

7. Miliaria Papulosa.

Synonyms.—Lichen tropicus; Prickly heat; Ger., Frieselausschlag.

Definition.—Is a primary acute inflammation of the sweat glands, usually met with in hot countries, characterized by an eruption of closely-set minute red papules and papulovesicles.

Symptomatology.—The rash occurs suddenly, most often upon the trunk, and is attended by itching, tingling heat, and profuse sweating, followed by slight desquamation. The papules are red, a colour which is sometimes emphasized by an inflammatory areola.

Etiology.—It is caused by excessive heat, and is common to persons entering tropical zones. The conditions may be simulated by a Turkish bath, which sometimes brings out an artificial *lichen tropicus* in persons unaccustomed to its use.

Pathology.—The sweat glands are inflamed—probably due to the sudden hyperæmia to which they are subjected. The author believes that probably some toxic irritant in the blood is excreted in the process, and causes direct damage to the glandular epithelium. The fact that only a certain number of those who enter the tropics or take a Turkish bath for the first time are affected with prickly heat appears to point to some peculiar determining condition, which may well be some irritant substance in the blood-stream, possibly diverted from the urinary or other excretory outlet by the sudden flushing of the skin and excitation of the sweat function. It must be acknowledged, however, that the explanation is not adequate, otherwise prickly rash would be liable to recur again and again under similar exposure, which it does not. Along with

excessive sweat production there appears to be often more or less obstruction of the ducts.

Diagnosis.—Prickly heat may be distinguished from vesicular eczema by its short duration and history, and by the absence of weeping and exudation.

Treatment.—A saline purge, light clothing, cold or tepid baths, with astringent lotions and dusting-powders, will soon effect a cure.

8. Milium Colloid.

Synonyms.—Colloid degeneration of the skin ; Fr., Hyalome cutané ; Ger., Hyalom der Haut.

Definition.—An extremely rare malady, chiefly affecting the upper part of the face, consisting of small yellow translucent papules which yield a gelatinous fluid on puncture.

Symptoms.—The lesions appear for the most part about the eyelids in the form of lemon-colour papules, from the size of a millet-seed to that of a split pea. The milium papule has a vesicular top, and on puncture exudes a small quantity of gelatinous fluid, sometimes tinged with a little blood.

Pathology.—The process appears to be one of pure colloid degeneration of the subcutaneous connective tissue. The sebaceous glands are not involved, as in *miliaria*, and the contents of the latter are cheesy or calcareous, not gelatinous. In one case under the author's care the lesions were of a uniform size, about that of a large pin-head, and were confined to the eyelids.

Treatment.—Ordinary antispetics may be applied ; an efficient remedy is electrolytic puncture.

CLASS VI

DISORDERS OF THE HAIR AND NAILS

1. Alopecia.

Synonyms.—Calvities ; Baldness.

Definition.—Alopecia signifies baldness, partial or complete, from absence or loss of hair. It may be congenital or acquired, premature or senile, or symptomatic. (The special acquired patchy form known as "alopecia areata" is described elsewhere.) The various forms will be discussed separately.

Congenital Alopecia, a rare affection, may be partial or complete. It is usually associated with defects of nails and teeth.

Acquired Baldness includes most of the remaining varieties.

Symptomatic Baldness embraces the acute shedding of hair that attends many of the exanthematous fevers, as well as more profound constitutional disturbances, as those of syphilis, cancer, diabetes, myxœdema, and phthisis. In a certain sense alopecia of local or external origin may be said to be "symptomatic," but that term is reserved by general consent for baldness arising from definite internal causes. Thus, when a patient's hair has fallen rapidly after, say, enteric fever or childbirth, we connect the two phenomena as cause and effect (or "symptom"). At the same time, various forms of premature baldness usually attributed to seborrhœa may be in reality symptomatic of internal causes. Thus, the author imagines that constipation may be closely concerned in many cases of premature baldness, and that the attendant seborrhœa may be mainly a secondary complication. In this way the varying severity of so universal a condition as seborrhœa of the scalp may be to some extent accounted for.

Premature Baldness (Alopecia Præcox) is most commonly caused by the chronic slow inflammatory affection of the scalp known as "seborrhœa" (*q.v.*), due to local invasion by one or more micro-organisms. This form may be classified as symptomatic of local infection.

Recent observations have led me to conclude that the state of the surface circulation is intimately concerned with baldness. In several cases acute shedding of hair, without obvious local cause, was associated with valvular disease of the heart. Further, in middle life the hair was rapidly lost in certain cases of failure of cardiac compensation. This association can be simply explained by assuming that a failing heart cannot maintain a normal filling of the capillaries of the scalp, the nutrition of which is speedily damaged. Turning to senile pathology, we find that shrinkage of the surface capillaries is an outstanding feature (John Mackenzie), and that particular atrophy is shown in the scalp, which in old people is commonly smooth, bald, thin, and tightly applied to the skull. When from any cause in younger life the heart is weakened—say from influenza, enteric or rheumatic fever—disturbance of the surface scalp circulation takes place, and we have acute alopecia. The patient may or may not recover from that condition; in other words, he may or may not remain permanently bald or semi-bald. What is commonly known as "alopecia præcox," or premature baldness, is, in my opinion, probably due in most cases to local circulatory atrophy. Other contributory causes, such as anæmia, insufficiency of fluid, toxæmia, and want of exercise, may be present. The value of this observation in treatment is clear. Alopecia, premature or senile, is symptomatic of a circulatory defect, which demands as a rule both local and general treatment. That shrinkage of scalp capillaries is not an absolutely essential accompaniment of old age is shown by the fact that quite a number of persons live to ninety or a hundred years and yet retain a good head of hair.

Senile Alopecia is commoner in men than in women, and comes on in advanced age as a part of the general failure of nutrition and atrophy of skin structures which characterizes

that period of life. The baldness begins behind at the crown, and in front by the gradual receding of the hair from the forehead and its side-bays that run back into the temples. These bald areas at length meet, and the process extends until nothing more is left than a fringe of hair around the lower part of the head. Although these processes have been from time immemorial attributed to old age, yet there is some reason to suppose that seborrhœa plays an important part in the process. At any rate, it is a fact that some folk retain a vigorous growth of hair to the end of a long life. Such an association, however, will be found, as a rule, only in persons of exceptional vigour. It by no means excludes the senile factor from those who become grey and old at or before middle age, and in whom baldness may fairly be ascribed to a premature failure of the average stock of vitality termed by the statistician "expectation of life."

Prognosis.—The chances of a regrowth of hair are chiefly dependent on the age of the patient and the extent and duration of the process. In patients over forty there is not much hope of cure, although, given a good constitution and thorough treatment, the destructive process should be arrested in most instances, so that the patient may hope to keep what hair is left on the scalp. After any of the fevers or syphilis the thinness or baldness should be readily remedied by prompt treatment. The longer the delay, the more difficult is it to induce a fresh growth. When the hair follicles are destroyed and the scalp has become perfectly smooth, shiny, and wasted, there is no chance of recovery.

Treatment—*Preventive.*—This is of the utmost importance, and includes the most careful attention to the hygiene of the scalp in the matter of washing, attention to brushes, and so on. It should be remembered that dandruff is a sign of active seborrhœa. Fuller information on this and other subjects relating to the hair will be found in a short monograph written by the author.*

Constitutional Treatment.—It is important to treat such conditions as anæmia, constipation, and rheumatism. Turkish

* "The Hair and its Diseases," David Walsh, M.D. (Baillière, Tindall and Cox, London, W.C.). Second edition, price 2s. 6d. net.

baths are useful, and the writer has often found the hot-air treatment of benefit, especially in patients with a rheumatic or gouty taint. Syphilis should, of course, be treated when present. Some forms of baldness are associated with exophthalmic goitre and myxœdema, alone or associated. The latter combination the author has noted in a fair number of cases of partial and complete baldness. Apart from myxœdematous changes, the cautious administration of thyroid gland is often useful, given in small doses over a prolonged period ; but if given in excess, it is apt to have a contrary effect, and cause the hair to fall out still more.

Locally the chief indications are to remove dandruff and keep the scalp clean. Washing should be once a week or once a fortnight, according to the amount of dandruff or greasiness. A good antiseptic soap should be well lathered and rubbed into the scalp, which afterwards should be completely freed from the suds. Next comes the application of stimulant antiseptics. As a rule these remedies should be mild, and their use continued over a long time. The practitioner who uses strong and powerful remedies in alopecia of the scalp will find he has trusted to a broken reed. Drugs may be applied to the scalp in the form of ointment or of lotions. In many cases, especially with greasy scalps and with females, a lotion is preferable, especially one made up with spirit. A word of caution may be given with regard to corrosive sublimate, inasmuch as it has led to several cases of fatal poisoning. If used at all, the drug should not be applied by means of a brush, as it is apt to accumulate in the bristles. Sulphur is useful, especially where there is obvious seborrhœa. It is best applied as an ointment, thus—

℞ Sulph. sublimati - - - - ℥ss.
Glycerini - - - - - - ℥i.
Lanolini - - - - - - ad ℥i.

Resorcin is an excellent drug for the purpose ; a good formula is—

℞ Resorcini - - - - - - ℥ss.–℈i.
Aq. Cologniensis - - - - ℥i.
Spirit. vin. rect. - - - - ad ℥vi.

Using this lotion as a basis, it is easy to add liq. carbonis detergens (ʒii.), cyllin (ʒi.), oleum ricini (ʒi. or ʒii.), tinctura cantharidis (ʒi. to ʒiv.), or other drugs as required.

2. Alopecia Areata.

Definition.—Alopecia areata (patchy baldness) is a disease of the hair characterized by sharply-defined areas of more or less complete baldness, which appear usually on the scalp, but may affect any part of the hairy body.

Symptomatology.—The patches are usually round, and may be of any size. At times they are in bands, more especially along the margins of the scalp. The typical patch is smooth, white, quite devoid of hair, and feels somewhat atrophic. It answers well to the popular description "bald as a billiard ball." The margins are sharply defined. Sabouraud attributes it to the seborrhœic bacillus, but his views are not generally accepted. Some observers connect it with ringworm, a theory that has been disproved by Norman Walker; but as a symptomatic malady it is probably due in some cases to a parasitic, and in others to a trophoneurotic, origin. It is associated with various forms of debility, and is met with in myxœdema. The areata patch is a characteristic feature of a temperament described by the present writer as "potential exophthalmic goitre," in which a congenital high forehead (frontal band alopecia) is associated in young persons with tachycardia, tremors, abnormality of thyroid, headaches, nervousness, alopecia patches, and various vasomotor troubles, such as epistaxis. When these patients get a shock, especially if poorly fed, they are apt to develop exophthalmic goitre, which is often overlooked. In spreading areata the surrounding hair may be thin and broken, and short club-shaped exclamation (!) hairs may be seen near the outer part of the bald area. The patches may coalesce; they may recur again and again, or the process may become universal, and the patient lose every hair on his body.

After a time the recovery stage is marked by the growth of a fine white down over the surface. This may drop out,

and a fresh younger growth follow. Later the hair usually turns its proper colour. In some cases regrowth occurs after a lapse of several years.

Eddowes pointed out many years ago that patches of white or grey hair may be associated with areata. In a case under my own care a greengrocer, about thirty-five years of age, of strong physique but neurotic temperament, developed area patches, which were attributed to seborrhœa. After about a year's treatment he fell from a ladder, and lost all the rest of his hair and that of his eyebrows. A year later the scalp was covered with a fine growth of white hair, while the hair of his armpits and pubic region did not fall, but turned white. The original colour of his hair was dark brown. This case was regarded as probably one first of toxic and then of neurotic origin.

Another interesting case was that of a Crimean officer, seventy-three years of age, who was knocked down by a motor-car, and later underwent a serious operation. Some months later half the hair of his moustache and imperial fell out, but grew again under small doses of thyroid gland. This is a good illustration of the neurotic form.

Etiology and Pathology.—The origin of alopecia areata is not clear. Its occasional occurrence in schools and barracks as an epidemic points to its contagiousness in some instances. On the other hand, its association with neuralgia, mental shock, blows on the head, and so on, support the view of a trophoneurotic origin. We know that patches of baldness may be produced experimentally by the injection of a toxin. Possibly the cause of epidemic areas is exposure to some common internal infection or food toxin. On the other hand, local infection by the barber's chair points to a specific pathogenic agent. In syphilis the patches are often angular rather than rounded, or they may appear as numerous small, round, bare spots the size of a halfpenny or a penny, giving the head a peculiar "moth-eaten" look. In congenital syphilis the front half of the skull may be bald.

In quite a large number of chronic and recurrent cases of alopecia areata at all ages the author has found valvular

disease of the heart. Indeed, so far as his observations go, he is inclined to regard alopecia areata as symptomatic in many instances of cardiac trouble. The association may possibly be explained by the inability of badly nourished surface tissues of the scalp to resist the traumatism of local or of circulatory toxins or bacteria.

The roots of the hairs are atrophic. The "point of exclamation" hair is due to the wasted lower part of the hair. It is met with occasionally in ringworm and in ordinary seborrhœa. On examination by special staining methods, many micro-organisms may be seen.

Diagnosis.—*Alopecia areata* may be confused with *ringworm* and with *lupus erythematosus*. From the bald form of ringworm, the only one with which it is likely to be confused, it can be distinguished by examination with a lens, which shows the ringworm hairs broken off short in the follicles. If a stump can be extracted, it will be found to have the ringworm fungus. An ordinary round ringworm patch is covered with broken hairs loaded with spores. Lupus erythematosus has bald rounded areas, but their edge is raised, reddish, and scaling, while the centre is markedly atrophic.

Prognosis.—Under the age of forty recovery may be expected in the majority of cases. After that age the chances of regrowth of hair become less and less. The prospect is practically hopeless in very extensive or universal cases. Locally the activity of the patch is indicated by the presence of exclamation hairs.

Treatment.—Any general ailment should be attended to; personally the writer gives thyroid gland an early trial in most cases.

Local.—This consists in the application of strong stimulants and antiseptics. Sulphur, sulphurous acid (undiluted), chrysarobin (ointment and stick), and strong ammonia, are all highly recommended. A good application is—

℞ Resorcini - - - - - - ʒi.
Ac. salicylici - - - - - gr. xx.
Liq. epispastici - - - - - ʒii.
Sp. vin. - - - - - - ad ʒiv.

M. Ft. lotio. Sig.: To be well rubbed nightly with a stiff brush into and around patches.

Lactic acid (1 drachm to 4 ounces of spirit) is useful, and the amount of the acid to be increased gradually to 1 ounce as the scalp grows tolerant.

Strong ammonia has long been a favourite remedy.

Blistering is often useful in chronic cases.

The scalp should be washed regularly with an antiseptic soap. Brushes should be kept scrupulously clean in the same way, or, better, abandoned altogether.

The writer has found the application of galvanic current (1 to 3 milliampères) of great value as a stimulant to the growth of the hair in recent and in old-standing cases. At times the high-frequency electrical current yields brilliant results.

Where feasible, it will be safer to keep affected children out of boarding-schools. Where there is any chance of spreading the infection, the writer strongly advises painting the patches with a protective film of 1 per cent. carbolic or salicylic acid collodion. When that is done, a child can safely be allowed to attend school.

3. **Atrophia Pilorum Propria.**

Synonym.—Brittleness or atrophy of the hair.

Definition.—Atrophy of the hair is an acquired condition in which the hair becomes dry and lustreless, and breaks readily ; it may be symptomatic or idiopathic.

Varieties and Symptomatology.—Atrophy shows itself in various ways. One of the early signs of damaged nutrition is that the hair gradually loses its natural lustre and curl, and becomes brittle and broken. The defect may be of local or constitutional origin. Its chief local cause is seborrhœa ; alopecia areata causes rapid atrophy and shedding of hair ; the various vegetable parasitic affections, such as ringworm and favus, do the same. Of constitutional causes, syphilis is common. The nutrition of the hair is affected early in the course of many diseases, such as influenza and the exanthems, probably as a result of toxic action. The author has frequently noted atrophy and shedding of the hair in connection

with constipation. He has also noted those signs in a large number of cases of valvular heart disease. In short, he believes the hairs were in many cases a delicate index of constitutional changes, were the connection between cause and effect was more accurately known. An interesting fact brought to the author's notice is that, whereas in healthy sheep it is difficult to pull out and break across a piece of wool, on the other hand, in sheep affected mildly with liver fluke, the wool comes out with a moderate pull, and the hair breaks also with moderate force; while in advanced stages of the disease the wool comes out at a touch, and is readily broken across. For purposes of clinical comparison with what happens in man, this observation is full of significance.

There are two special so-called "idiopathic" varieties (as apart from symptomatic):

1. *Fragilitas Crinium* is a somewhat rare condition in which the hair tends to split up into filaments.

2. *Trichorrhexis Nodosa* is a rare affection in which a number of small whitish, shiny nodules develop along the hair, most commonly in the beard and moustache. Under the microscope the swellings are seen to be due to a bursting of the hair into filaments, which are arranged so as to resemble the bristles of two small paint-brushes that have been pushed together. (See Nodular Diseases below.)

Etiology.—The causes may be toxic, acting through the circulation on the hair follicle; or micro-organisms may invade the root sheaths and adjoining sebaceous glands. Nervous influences may be concerned. Some authors think mechanical causes are chiefly concerned—as, for instance, the length of the hair, washing, combing, the wearing of hats, and so on. The fact is that in so symptomatic an affection a number of causes are likely to be at work.

Treatment.—The use of local prolonged stimulation, with antiseptic applications such as—

℞ Resorcini - - - - - - ʒi.
Liq. carb. deterg. - - - - ʒvi.
Sp. vin. rect. - - - - - ad ℥vi.

M. Ft. lotio.

Repeated shaving is sometimes of use, and galvanism or a mild faradic or high-frequency current in nervous cases. Prognosis, however, should always be guarded.

4. Nodular Diseases of Hair of Parasitic Origin (Castellani).

1. *Trichosporosis tropica* or *piedra.*
2. *Unna's trichosporosis* or *piedra nostras.*
3. *Behrend's trichosporosis* or *"Nodular trichomycosis."*
4. *Beigel's trichosporosis* or *tinea nodosa.*
5. *Du Bois's trichosporosis.*
6. *Lepothrix* or *Pick's trichomycosis palmellina,* or *trichomycosis nodosa* of temperate zones.

Castellani* described a nodular affection of the hair of axillary regions resembling lepothrix, due to a very thin bacillary-like fungus, which he named *Nocardia tenuis.* The yellow variety is due to this organism. Symbiosis with chromogenic bacteria produced black and red varieties.

1. *Trichosporosis tropica* or *piedra:* very hard nodules, probably due to several varieties of trichosporon.

2. *Unna's trichosporosis* of moustache and beard: due to Unna's *Trichosporon ovale.*

3. *Behrend's:* affecting beard: due to *Trichosporon ovoide.*

4. *Beigel's:* discovered in London by Cheadle and Morris, due to *Trichosporon Beigeli.*

5. *Du Bois's Trichosporosis:* hair of pubes, due to *Trichosporon glycophiles.*

6. *Lepothorix:* due to one or more species of bacteria (bacilli, cocci, etc.).

To this Castellani adds his own, in which in the affected axillary hairs the nodules are soft, easily removed, and the hair does not become brittle. It is of slight pathogenic importance, and readily curable.

5. Canities.

Synonyms.—Atrophy of hair pigment; Blanching; Greyness or whiteness of the hair; Poliosis.

* Proc. Roy. Soc. Med., December, 1912, p. 23.

Definition.—Canities is the condition of the hair in which greyness or whiteness is produced as the result of pigmentary atrophy.

Symptomatology.—The change in colour may be general or local (in patches). It is in rare instances congenital (*albinism*), but usually acquired. It is in most cases a change incidental to advancing years.

Etiology.—Heredity is a common factor, and men are affected more than women. When occurring in young persons or before middle age, it is called *canities præcox;* it is apt to follow severe illness, such as influenza or the exanthems. In one case associated with epilepsy the hair changed colour repeatedly through a number of years. Profound mental shock may turn hair white suddenly. Patchy congenital canities, a streak of white hair, is met with occasionally.

Microscopically the pigment is broken up or absent, and the hair is filled with air-spaces.

Long-continued seborrhœa has often an undoubted influence in producing greyness.

Treatment is of little value. It is not advisable to use dyes.

6. Lepothrix.

An unimportant condition affecting chiefly the hairs of the axilla and pubic region. The hairs are coated externally with concretions. In the armpits they have a reddish colour, and commonly stain the clothing in immediate contact. The pigment is probably due to an accidental micro-organism affecting that habitat.

7. Monilethrix.

Also known as "moniliform hairs," described first by Walter Smith of Dublin. Usually, if not invariably, a congenital condition, affecting the hairs of any part of the body. The hair shaft is constricted at intervals more or less regular; the pigment is atrophied at the nodes. Little is known of its origin or pathology. I have frequently noticed hairs of an irregularly moniliform nature in the neighbourhood of patches of alopecia areata, and associated with the scattered grey hairs of seborrhœa.

8. **Hypertrichosis.**

Synonyms.—Hirsuties ; Hairiness ; Polytrichia ; Superfluous hair ; Trichauxis ; Fr., Poils accidentals.

Definition.—A growth of hair, local or general, abnormal as regards sex, age, situation, or natural degree of development.

Symptoms and Varieties.—Local overgrowth may take place in sites where hairs are normally absent (*e.g.*, palms or soles), or in hairy moles, or following irritation (as a mustard blister or stimulating ointment) ; or local overgrowth may affect existing lanugo, as in the beard and moustache region of females ; this, again, may appear at an early age, but is more common about middle life. The abnormal hairiness may affect the arms, legs, and trunk, sometimes diffusely, at other times in lines (*e.g.*, down the centre line of the front of body from neck to pubes). In extremely rare cases there is general hairiness, and the whole face is covered with long hair like that of a Scotch terrier.

Etiology.—Racial tendency and heredity are in most cases largely concerned. In women hirsuties is often met with in several individuals during successive generations. Broadly speaking, the tendency is probably an expression of reversion to an ancestral characteristic. This is the more likely as excessive hairiness in women is not infrequently accompanied by other congenital defects, such as insanity, irregular dentition, and barrenness.

Dark-haired persons are said to be more subject to overgrowth than those having light hair, but the difference is probably more apparent than real. In certain constitutional predispositions, such as the tubercular, there is a special tendency towards hairiness.

Treatment.—The only treatment of any use is that by electrolysis. Other methods, such as the X-ray and depilatories, are unsatisfactory. The X rays cause the hair to fall out, but there is often rapid recurrence, with the constant risk of deep " burns " and subsequent scarring. Even in the most experienced hands, it is impossible to offer even a reasonable prospect of success. Depilatories make the face smooth for

a time, but in the long-run simply lead to a stronger growth of hair. The same thing may be said of plucking out the hairs. Apart from electrolysis, indeed, the best palliative method is the daily use of a safety or ordinary razor.

Electrolysis is a painful and costly process, but it always succeeds if persevered with for a long enough time. It is largely in the hands of unqualified persons, who by their specious promises and unskilled methods have done much to bring into disrepute a method which, despite its difficulties, is the only effectual one yet discovered by medical science. The plain statement is that in the most skilful hands there is likely to be regrowth in at least fifty out of every hundred hairs destroyed. This means that the treatment must be extended over a long period in severe cases where the growth is thick and strong, for perhaps two years or more. Such recurrence is more than likely when the hairs have been repeatedly extracted, and the roots have become deep and twisted. Lastly, it is very necessary to observe aseptic cleanliness.

The application of electrolysis to the hair follicle is a simple matter. The needle is fixed to the negative pole of a galvanic battery, while the positive pole is connected with a small bowl of water (containing a pinch of salt). The hand of the patient is immersed in the water, and the circuit thereby completed. A fine needle held in a special holder is accurately inserted into the follicle at the base of the selected hair. The handle of the commutator is then turned, and a current of 2 to 4 milliampères passed through the needle. After a few seconds a froth appears round the point of entry, and the needle is then withdrawn. The hair is now grasped with forceps and if the root has been destroyed it comes away at a touch. Should the hair resist traction, the needle should be reinserted; and if that again be unsuccessful, it may be tried upon another occasion. A space should be left between hairs to be extracted—that is, they should not be too close together. The inflammation set up by the little operation soon subsides, and it is well to apply a mild antiseptic ointment and powder after treatment. The ultimate result in successful cases is a minute scar, to be seen only on close inspection with a magni-

fying-glass, at the orifice of each follicle. It is well to remember, however, that the size of this scar depends on the coarseness and depth of the hair root that has been destroyed, and that in some degree it must always be present. This fact may

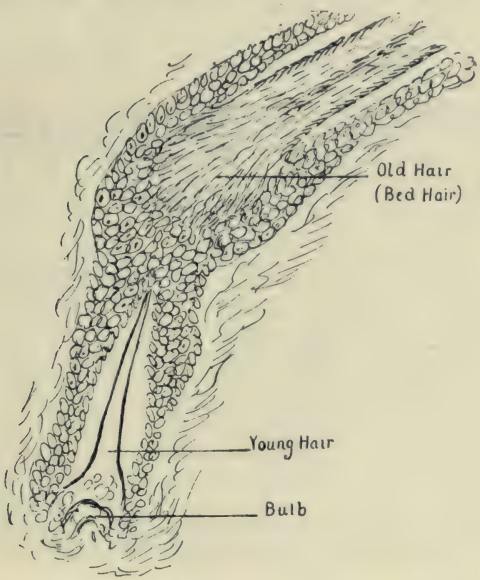

FIG. 8.—SHOWING THE METHOD OF REPRODUCTION OF A NEW HAIR (UNNA) WHILE THE OLD ONE IS BEING SHED.

have a practical bearing of considerable value in actions for malpraxis, which are by no means unknown in connection with electrolysis.

A glance at the accompanying illustration (Fig. 8) will show why electrolysis fails to destroy the papilla and prevent production of fresh hair.

9. **Onychitis.**

Synonyms.—Onychia ; Onyxis.

Definition.—Disturbed nutrition and alteration of nails, either primary or secondary (symptomatic).

Symptoms and Varieties.—Inflammation of nails may be the result of traumatism, in which case they are usually shed. Ringworm of the nails is an interesting condition in which the nails become thickened, irregular, and deformed, owing to invasion by a ringworm fungus, usually the large-spored or osary variety. The process may commence primarily in the nails, or may extend to them from the surrounding skin.

FIG. 9.—SYPHILITIC DISEASE OF THE NAILS.

Patient was treated for syphilis thirty years previously. No other evidence of the disease. Had one child, who was undersized (infantilism).

The chief causes of onychitis are constitutional—namely, syphilis and tuberculosis. In all general infective diseases there may be a transverse furrow, marking a period of arrested nutrition in the growth of the nail.

Syphilis may cause onychitis alone, or perionychitis and onychitis. It is eventually a trophic lesion, and usually affects only one or two of the nails, which are thickened and irregular, and may be periodically shed. In one patient under the author a chronic onychitis of this kind, involving all the nails of the hands (often all at one time), was the only trace of

syphilis twenty years previously (the patient had one child, who showed infantilism). At that time the Wassermann test had not been introduced.

Another interesting point is the *café-au-lait* colour sometimes seen in the nails of syphilitic patients. Some say that the tint is due to mercury. In a case under the author the hands showed a persistent and peculiar reddish-brown tint in addition.

Tubercular Onychitis often accompanies dactylitis in children. Three or four nails, or more, may be affected. In one case under the writer the whole of the nails were affected, and there was a history of both syphilis and tuberculosis.

The nails in tubercular subjects are apt to be shield-shaped and brittle. In later stages they are often clubbed—that is, sharply bent inwards at the free ends—and the same thing is apt to accompany chronic vascular troubles, such as long-standing valvular disease.

Etiology.—Malnutrition of toxic or inflammatory, or circulatory origin (*e.g.*, fungus or the spirochætæ of syphilis); some say that many cases are trophoneurotic, but granting that condition, a more remote cause, such as syphilis, is not thereby excluded.

Treatment.—Local inflammation, both onychial and peri-onychial, must be subdued by appropriate remedies. Ringworm nails should be scraped and treated with parasiticide ointments, or, better still, packed with antiseptic lotions under oilsilk.

Syphilis and other constitutional maladies require careful attention, and that, indeed, is all that can be attempted in many cases of chronic onychitis.

10. Onychauxis (Onychogryphosis).

Synonyms.—Hypertrophy of nail; Onychogryphon; Griffin claws.

Definition.—Hypertrophy of the nail as to length, width, or thickness, or in all three directions, associated with various degrees of discoloration and deformity.

Symptoms and Varieties.—When the nail spreads laterally, it causes inflammation of the surrounding parts (paronychia), and constitutes the painful condition known as "ingrowing nail." At times the hypertrophy affects the whole nail, which grows into a bent, twisted, and discoloured mass somewhat resembling a ram's horn (onychogryphosis, or griffin claw).

Etiology.—Overgrowth of nails is usually connected with some chronic general condition, which may be inflammatory, as in syphilitic and tubercular subjects, or non-inflammatory, such as ichthyosis. Locally it may result from long-continued irritation of tight shoes or eczema.

Treatment.—Removal of any obvious cause. Ingrowing nail should be treated by paring away the edge of the nail, and scraping the surface of the nail with a piece of glass or a knife. Bits of lint or cotton-wool soaked in boracic acid or other mild antiseptic solutions should be inserted between the nail and the inflamed tissues. In onychogryphosis the nails, after soaking in hot water, should be removed with knife, scissors, or bone forceps.

11. Atrophia Unguium.

Synonym.—Atrophy of the nails.

Definition.—A congenital or acquired condition in which the nail tissue atrophies, causing softening, splitting, pitting, discoloration and other changes.

Symptomatology.—The nails may be wanting, defective, or malformed. In the acquired form, which is much the more common, the nail may be thin, narrow, split, curved downwards or upwards, or be opaque, pitted, or ridged.

Etiology.—Acquired atrophy may result from trauma; from syphilis, tuberculosis, and other wasting diseases; from nerve injuries, or by the extension of eczematous and psoriasiform eruptions; or from invasion by a ringworm fungus (onychomycosis), in which case the fungus is easily found.

Treatment.—Treat general condition. Local inflammations require appropriate remedies. Affected nails should be scraped thin with a piece of glass, soaked with liquor potassæ, and treated continuously with a mercurial ointment (as the oleate, 5 per cent.).

CLASS VII

DISORDERS OF PIGMENTATION

1. Lentigo.

Synonyms.—Freckles ; Ephelides ; Ger., Sommersprossen.

Definition.—A freckle is a small pigmented macule in the skin.

Symptoms.—Freckles may be few or many, and appear chiefly on the face, backs of hands, and other parts exposed to the light. They are perfectly smooth to the touch, usually rounded, from a pin-head in size to that of a pea, in colour yellow, but sometimes light or even dark brown.

Etiology.—Freckles are common in youth and in persons with light hair and delicate complexion. They are excited by the sun's rays, and are hence most frequently met with in the summer. Freckles sometimes develop in older persons, usually on covered parts, and sometimes in connection with osteo-arthritis. The change is due to an abnormal deposit of pigment in the basement cells of a circumscribed part of the epidermis.

Treatment is not of much avail. Perchloride of mercury (gr. ii. ad ℥i. unguentum) is sometimes useful. Pure carbolic acid may be applied lightly to each spot, or a mild salicylic acid plaster may be worn at night.

Blistering is an extreme measure, and recurrence is a likely after-event.

2. Leucoderma.

Synonyms.—Vitiligo ; Leucopathia ; Achromia ; Piebald skin.

Definition.—Is an acquired condition in which variously-shaped patches of skin lose their pigment, and at the same

time the surrounding skin shows an increased pigmentation. Except for loss of colour, the leucodermic skin is normal.

Symptomatology.—The disease most commonly affects the neck, face, trunk, and backs of hands. There is always a surrounding increase of pigment, and the white edges are concave, as if extending into the pigmented area. Patches may coalesce, and are sometimes very disfiguring. The hairs on the affected surface may or may not be whitened. The first step is the deposition of pigment, and it is the dark border that attracts the patient's attention.

Etiology is obscure ; it is possibly or probably of trophic neurotic origin, but the possibility of a microbial origin is not altogether remote. It is sometimes associated with syphilis, especially in the neck, with alopecia areata, and may follow enteric fever or other serious illness.

The subject teems with philosophic interest. Sir Jonathan Hutchinson has traced a direct relationship between the extent of white stockings and the central white blaze on the forehead of horses, goats, and various other quadrupeds. Mr. Maurice Cane* refers to two human piebalds, one a negress, whose portraits are in the English Royal College of Surgeons' Museum. Each of these shows the blaze on forehead. He also alludes to three photographs given him by Professor Neisser of Breslau with a similar defect. Another associated hereditary phenomenon is the white forelock.

Diagnosis.—It must be distinguished from morphœa and anæsthetic leprosy. From morphœa it may be distinguished by the slightly raised violaceous border of the latter. In leprosy there are local tissue and general constitutional changes. From melanoderma it may be distinguished by the fact that the dark edge of the leucodermic patch is concave, while that of the melanoderma is convex.

Treatment is not encouraging. The best plan is, probably, that of inducing local hyperæmia by Bier's suction cups or by local stimulants. Good results are sometimes obtainable from the prolonged use of corrosive sublimate in ointment or lotion, or from a 10 per cent. alcoholic solution of iodine. In

* "Hair and its Heredity," *English Review*, October, 1912.

doubtful cases antiseptic treatment may be useful. Ionization has been advocated. Internally arsenic is said at times to be beneficial.

Prognosis is not good.

3. Chloasma.

Synonyms.—Liver spot ; Moth patch ; Mask ; Fr., Chaleur de foie, Cloasme, Parure hépatique, Tache hépatique ; Ger., Leberflecken.

Definition.—The name applied to a variety of local yellowish, brownish, or blackish, patchy or diffuse discolorations of the skin.

Symptomatology and Varieties.—Pigmentation may be of external origin, and that, again, may be local or general. It may, for instance, occur on the site of a mustard blister, or affect parts exposed to heat (sunburn) or prolonged scratching (vagabond's skin). The symptomatic forms may also be local or general, and are associated with a great variety of conditions ; in all or nearly all of them the regulating control of the nervous system over the pigment of the skin is probably impaired. A yellowish-brown pigmentation is marked in many syphilitic rashes, and a deep brown after-stain is equally characteristic of the lichen planus papule. The prolonged use of arsenic may cause patchy or diffuse discoloration, especially if combined with bromide of potassium. Unna classifies pigmentary hypertrophia with the progressive disturbances of nutrition, such as chlorosis, Addison's disease, cancer, and so on.

Chloasma Uterinum is a common symptomatic form due to reflex irritation of the uterus or ovaries from gestation or other disturbance. Yellowish to almost black patches or bands appear on the forehead, and sometimes involve the whole face (mask) or neck, the breasts, navel, etc. They may disappear on removal of cause, or remain permanently. The condition is seen physiologically in the darkening of the nipple areola in pregnancy.

Argyria is the name given to the slaty blue-grey tint which sometimes involves the whole body surface after the prolonged internal administration of nitrate of silver.

In *Xeroderma Pigmentosum* pigmentation is an essential feature of the disease, and is of peculiar importance because of the tendency to later malignancy.

In *Addison's Disease* the whole skin has a peculiar yellowish-brown tint, usually beginning about the neck, axilla, and genitalia—regions where there is a tendency to pigmentation. It is associated with serious and progressive failure of health.

Etiology.—The question of cutaneous pigmentation is complex, and much of it still obscure. The nervous system is probably implicated in nearly all cases. In Addison's disease the suprarenal capsules are invariably affected with some grave disease, such as tuberculosis or cancer. The uterine symptomatic group is pretty clearly of reflex origin. The action of arsenic suggests that in some instances toxins may be at the root of the mischief. The same thing may be said of the pigmentation in the lesions of syphilis and of lichen planus, in which either special micro-organisms or their toxins, or both, may be concerned. Individual predisposition appears to be a factor. Speaking generally, any severe or long-continued inflammation of the skin may be attended with more or less lasting pigmentation, and in many instances the author has found the condition associated with grave circulatory defects, as a rule of cardiac origin.

Diagnosis.—This is fairly easy if the main facts are borne in mind. The clinical test of pigmentation is that it does not fade under pressure. The chief pitfall in diagnosis is the mistaking of an excessive physiological pigmentation or of ordinary chloasma for the *cutis aëna* of Addison's disease.

Washing with soap and water is sometimes useful.

The brownish patches of *tinea versicolor*, which was often called "chloasma" by the earlier dermatologists, will not be confused with true chloasma if we remember that in tinea the spots are slightly rough, scaly, and attended with a little itching; they occur chiefly on the upper part of the trunk; their colour can be scraped away, and a coarse fungus (*Microsporon furfur*) is found abundantly in the scales treated with caustic potash and examined microscopically.

Treatment.—Unsatisfactory ; removal of cause when possible. *Locally*, applications of corrosive sublimate.

Prognosis should be guarded in the symptomatic varieties. Vigorous treatment may make matters worse.

4. Nævus Pigmentosus.

Synonyms.—Mole ; Pigmentary mole ; Nævus spilus ; Nævus verrucosus ; Hairy mole ; Mother's mark ; Ger., Fleckenmal.

Definition.—A congenital circumscribed pigmentation of the skin, usually accompanied by hypertrophy in varying degree of connective tissues, hair, and epithelium.

FIG. 10.—LINEAR NÆVUS OR ICHTHYOSIS HYSTRIX : CONGENITAL PIGMENTED PAPILLOMA.
(Author's case.)

Symptoms.—Colour may be brownish to black, single or multiple, in size from a pin-head to the palm of the hand, or in some instances (hairy mole) involving a large portion of the body surface. They may be flat and level, but are commonly raised. The epithelium may be overgrown and form warty growths (*nævus verrucosus*). The distribution is usually irregular, but sometimes they are arranged in lines (*linear nævus*) or along the course of cutaneous nerves (*nævus unius*

lateris). The hairy mole is covered by hairs, which may be downy or thick and long, with deep roots. These hairy moles are often of large size. *Nævus lipomatodes* is the name given to the diffuse swelling formed by overgrowth of fat and connective tissue (*e.g.*, back of neck) in a venous nævus.

Etiology.—Obscure ; sometimes linear nævus is associated with disturbed nerve action. The pigmented mole may represent a reversion to some remote ancestral condition of skin.

Pathology.—The characteristic feature is the deposit of pigment, which may occur in the rete mucosum and in the corium. The fact that moles are in not a few cases the starting-point of carcinoma or sarcoma, usually of the pigmentary variety, points to some connection between the two, although it seems clear that melanotic cancer of the skin may originate independently of moles. The cell of the mole is closely related to that of the malignant neoplasm, and both to the pigment.

Treatment.—Removal by excision or by means of carbon dioxide snow. Caustics as a rule should be avoided, as they may induce malignancy. Electrolysis is useful and efficient, but is apt to be somewhat tedious. The author has found a combination of electrolysis with the " snow " a convenient plan. The mole is reduced by electrolysis, and finally disposed of by a touch with the crayon of frozen carbonic acid. It is a remarkable fact that electrolytic epilation of the hairs is usually followed by the disappearance of the mole.

Prognosis. — Moles never disappear spontaneously. On general principles it is well to remove large or prominent moles, especially where exposed to irritation. Should a mole show any signs of irritation or enlargement, it should be dealt with at once by instant extirpation. This general rule applies with far greater force if the patient be of middle or advanced age. The cancerous development of a mole is almost invariably of a melanotic nature, and is therefore of high malignancy.

CLASS VIII

DISORDERS OF VASCULAR ORIGIN

1. Angioma.

Synonyms.—Nævus vascularis ; Nævus flammeus ; Port wine mark ; Erectile tumour ; Vascular tumour.

Definition.—A new growth of the skin, consisting of newly-formed blood or lymph vessels and lymphatics, usually associated with more or less tissue hypertrophy.

Angioma may be conveniently divided into three classes :

1. Nævus vascularis.
2. Telangiectasis.
3. Angioma cavernosum.

1. Nævus vascularis is as a rule congenital, but may appear shortly after birth. It varies much in size—*e.g.*, from that of a pin-head to 3 or 4 inches in diameter ; its colour may be bright red to deep violet or " port wine." It becomes paler under pressure. Sometimes it extends in size.

2. Telangiectases are an acquired growth of dilated capillaries on the skin. They are painless, cold to touch, non-inflammatory, and usually met with on the face, but also on the neck, back of hands, etc.

3. Angioma cavernosum is a more serious condition in which the bloodvessels enlarge and coalesce in a dense framework of connective tissue. The growth may pulsate and attain a large size, involving the whole scalp. The condition is rarely congenital. It usually appears shortly after birth, and is steadily progressive. It may invade deep tissues, including the bone, and is then sooner or later fatal. In the pulsating varieties a bruit or hum can be heard with the stethoscope.

Etiology.—Obscure ; probably some congenital defect. In vascular nævus of the scalp in infants I have noted concomitant signs of syphilis sufficiently often to connect the two conditions in my own mind. It seemed to me that the nævus in such a case was probably a vascularized skin syphilide of intra-uterine life.

The telangiectasis is symptomatic. It is met with in rosacea and in some other skin affections. A frequent external cause is prolonged exposure to the weather. As a rule, however, the healthy skin recovers from such exposure without telangiectasis. There is an added something which leads to the formation of dilated vessels. That personal factor I believe to be usually some central cardiac defect. We know that a malar flush, usually with telangiectasis, is common in some forms of mitral disease. I have noted the connection in many forms of rosacea, both in the early congestive and in the later papulo-erythematous and telangiectatic forms. There are undoubtedly other circulatory predisposing or exciting conditions, such as the state of the blood itself. In this way toxic conditions due to the presence in the circulation of alcohol or of the intestinal toxins may lead to permanently dilated venules of the face, possibly by a combination of local damage to the walls of bloodvessels and centrally upon the heart muscle.

Treatment.—The vascular nævus can be destroyed, preferably by electrolysis, which I have used in many cases. If rightly used it should produce a smooth scar, but on the scalp it is followed by permanent alopecia. An anæsthetic is needed for its proper performance, both in children and adults. Carbon dioxide snow gives excellent results, and moderately firm pressure of the crayon for rather under thirty seconds being enough to cure without scarring.

The enlarged vessels of telangiectasis can be destroyed by multiple scarification, or better by electrolysis. Sodium ethylate has been much lauded as a caustic. Angioma cavernosum demands radical and prompt surgical treatment. The best plan is to ligature the growth in several portions at various sittings ; the injection of pure carbolic acid is useful

as an auxiliary measure. If small, the growth may be excised bodily.

Prognosis depends on the nature of the growth and the promptness and thoroughness of the treatment.

2. Lymphangioma.

Synonyms.—Lymphangiectodes; Lymphangiectasis; Lupus lymphaticus.

Definition.—A rare congenital affection of the skin consisting of one or more vesicular-looking patches consisting of overgrowth of lymphatic vessels.

Symptoms.—This rare and chronic affection shows itself as a patch made up of minute glistening vesico-papules of a whitish colour. There is no pain or tenderness. Most frequently there is only one patch, and when they are multiple, as a rule, only one region of the body is affected. A patch may be of the size of one's palm. The walls of the vessels may become reddish, thickened, and even fleshy. The resemblance to lupus is sometimes close.

Etiology and Pathology.—No cause known, though it is possible the origin may be neurotrophic. The essential process is one of non-inflammatory hypertrophy of the lymphatic vessels.

Treatment.—Excision or destruction by electrolysis are the only methods of any avail.

CLASS IX

HYPERTROPHIC AND ATROPHIC DERMATOSES

1. Clavus.

Synonyms.—Corns; Fr., Cor; Ger., Zeichdorn, Hühnerauge.

Definition.—A small flattened or conical circumscribed thickening of the horny layer of the epidermis, usually on the feet. There is a core which presses and causes pain.

Etiology.—Corns are almost always on the feet, and result from the intermittent friction or pressure of ill-fitting boots, which are either too tight or too loose. The commonest sites are on the outer side of the little toe, the prominent parts of the other toes, and the tread of the foot.

Pathology.—The corn is composed of hypertrophied horny epidermal cells. It has a central core or nail (clavus), which is pressed on the sensitive papillæ of the corium and causes pain. Sometimes corns "shoot" on their own account with changes of the weather. There is another painful variety, the "soft corn," which forms between the toes. Sometimes a corn inflames, or may suppurate or form deep ulcers. An inflamed corn is now and then the starting-point of entry for septic infections that may spread up the leg, or it may be the starting-point of senile gangrene.

Diagnosis.—The perforating ulcer (which see, p. 60) in its earlier stages is sometimes mistaken for a corn.

Treatment.—Care should be taken to have boots that fit well and are of good shape. *Locally*, after soaking in hot water the top of the corn can be shaved off with a razor, and the part painted for several days with a paint composed of—

℞ Acid. salicylici	ʒi.
Cannabis indicæ extr.	gr. v.
Collodion	ʒiv.

After about a week the corn comes away readily. This treatment should be repeated several times to insure permanent success. The part can be protected by a perforated felt ring or a strip of sticking-plaster. A good plan is to soak the corn with acetic acid, and afterwards rub it well with solid lunar caustic (Malcolm Morris).

Ulcerating corns should be cauterized and dressed with antiseptics.

2. Cornu Cutaneum.

Synonyms.—Cornu humanum ; Cutaneous horn : Fr., Corne de la peau ; Ger., Hauthorn.

Definition.—A painless horn, resembling that of the lower animals, projecting from the skin surface, due to circumscribed hypertrophy of the epidermis, usually occurring after middle age.

Symptomatology.—The horn is dry, hard, rough, and wrinkled, of various shapes and sizes, in colour brownish or black. It is painless unless inflamed, and grows slowly from the face, scalp, or other part of the body—*e.g.*, the penis. After a time the horn usually falls off, leaving a smooth surface, but later is reproduced.

Etiology.—Most likely that of ordinary papilloma, being an exaggerated wart. It sometimes springs from a wart or sebaceous cyst, and is extremely rare in young persons.

Pathology.—The growth consists of hypertrophied and cornified epidermal cells, sometimes with a concentric arrangement, with hypertrophy of basal papillæ. At times it becomes malignant.

Treatment.—Remove the growth and cauterize the base freely.

3. Callositas.

Synonyms.—Callosity ; Callus ; Tylosis ; Fr., Durillon.

Definition.—A more or less diffuse thickening of the horny layer of the skin due to prolonged pressure.

Symptoms.—The callous pad occurs physiologically on the feet On the hands it may interfere with the free movements and blunt the sense of touch.

Etiology.—Often the result of occupation, as the callous thickening on the hand of the bricklayer. Epidermal thickening of the palms and soles has been known to follow the internal use of arsenic.

Pathology.—There is great hypertrophy of the horny layer, with thinning of the mucous and flattening of the papillary layers.

The condition is met with normally on the soles of the feet. In some instances it occurs as a diffuse thickening of palms and soles, of congenital origin and sometimes hereditary. Possibly this form represents a reversion to some remote ancestral (? simian) character.

Treatment.—Remove the causative pressure. The thickened skin may be softened by salicylic acid collodion or by a plaster mull of salicylic acid and creasote, and then scraped away with a sharp spoon. Nothing can be done for the congenital form.

4. Ichthyosis.

Synonyms.—Fish-skin disease; Xeroderma; Xeroderma ichthyoides; Ichthyosis congenita or vera; Sauriasis.

Definition.—A not uncommon congenital defect of the skin affecting any part of the body, characterized by deficiency of the natural secretions and abnormal thickening of the horny layer in varying degrees.

Symptomatology.—The general symptoms are dryness of the skin, with deficiency or absence of sweat and a special vulnerability, which induces a tendency to dermatitis, especially in cold weather. The hairs as a rule are poorly developed all over the body. The roughened skin readily gets dirty, so that a dark discoloration is common, and it is difficult to keep the face and other parts of the body clean.

The general health is not affected, except in extreme cases. The disease may vary from mere dryness (xeroderma) to mild ichthyosis, in which there are papillary growths, so that the skin feels like a nutmeg-grater; or the growths may become scaly or papillomatous and greatly thickened. In the severe cases a large part of the body surface may be

covered with large thick scales resembling those on a crocodile's hide. The parts most frequently affected in this way are hands and feet. If the papillary outgrowth be sharply confined to patches or lines, it is known as *ichthyosis hystrix*. That condition, however, is really a nævus, and will be described under that heading.

FIG. 11.—MILD ICHTHYOSIS, SHOWING WRINKLING OF SKIN. (Dr. Meachen's case).

Varieties.—*Xeroderma*, the mildest degree of ichthyosis, shows itself in a slight dryness and harshness of the skin, with thickening of the epidermis over elbows and knees and over the extensor surfaces of the arms and thighs. The natural markings of the skin may be exaggerated, or the scales have a tessellated look; while over the knees and elbows it is often thrown into ridges and looks dirty. The condition may be noticed only in the winter up to puberty, when it

may become more pronounced or may altogether disappear. A common accompaniment is *keratosis pilaris*, due to hyperkeratosis of the ducts of the hair follicles. The hair of the scalp is usually more or less dry and of poor quality, as in chronic seborrhœa.

Xeroderma merges insensibly into the more marked condition of *ichthyosis simplex*, in which the thickening horny layer splits in various directions, so that it resembles the scales of a fish, from which the name of the disease is derived. The scales are shed freely. The palms, soles, and flexures usually escape, although the red horny palm is characteristic both of xeroderma and of ichthyosis simplex. The face and hands are often attacked and become eczematous (or, rather, develop a dermatitis with watery discharge). In the severest form the thickened skin is thrown into ridges and into coarse angular scales, which suggest the hide of an alligator.

Ichthyosis Congenita (harlequin fœtus ; keratosis congenita universalis) is an intra-uterine form of ichthyosis. The infant is born with a thickened horny, flaked covering. The eyelids, ears, and lips, are often wanting, and the fingers and toes resemble claws. Birth is usually premature, and death ensues within a few days or weeks, from loss of heat and inability to suckle, etc.

Acquired Ichthyosis has been noted by Crocker and others as coming on in late life.

Ichthyosis of palms and soles is described under *keratosis palmaris et plantaris*, *ichthyosis linguæ* under *leucoplakia*, *ichthyosis hystrix* under *linear nævus*.

Etiology.—Little is known beyond the fact that the disease is a congenital defect appearing as a rule shortly after birth. It is markedly hereditary, and may affect one sex in preference to the other, or several children in one family independdently of sex.

Pathology.—There is a marked parakeratitis, the horny layer being greatly thickened, and springing directly from the prickle layer without any intervening granular layer or cells showing deposit of keratohyalin and eleidin. The

glands are present, although not fully developed, as in normal skin. The corium is little affected, beyond slight inflammatory implication round the follicles and in the papillary layer. The most characteristic changes are in the papillæ, which are thrown up into long, thin, finger-like processes of unequal length, which have been compared to the projection showing the comparative heights of a series of Alpine peaks. The thickened epidermis sends off processes which fit in between the elongated papillæ like the fingers of a glove.

Treatment is palliative. Externally the scales may be removed, if slight, by alkaline warm baths and ordinary scrubbing with soap. If more severe, soft soap may be required, followed by inunction of lanoline or benzoated lard. Where many keratosis papules and papillary warts or scales are present, they may be softened by salicylic acid (gr. xv. ad ℥i.), or by ichthyol (40 per cent.) and salicylic acid (2 per cent.) on an ointment basis. Other applications are β-naphthol (10 per cent.—Kaposi), resorcin, sulphur. Inunction is always useful, as it tends to keep the skin supple; and where dermatitis is present, drugs such as calamine, boracic acid, or liq. carbonis detergens, can be conveniently added.

The writer has occasionally found great benefit follow the use of hot-water baths.

Internally thyroid extract sometimes affords much relief for a time, especially in children. Warm clothes and attention to personal hygiene, especially to the action of the bowels, are necessary.

Treatment is of little or no avail in the prenatal form (harlequin fœtus).

Diagnosis.—This is not difficult; the non-inflammatory dryness and roughness of the skin from childhood, with subjective symptoms or impaired health, serve to distinguish ichthyosis. It is not uncommon, however, to confuse dermatitis of a xerodermatous or ichthyotic skin with eczema. The sudden appearance of a watery discharge upon previously dry surfaces (such as the back of forearms) should suggest

such a possibility. The discharge does not stiffen linen, and is attended with ichthyotic changes elsewhere.

Prognosis.—The disease may be relieved, but is practically incurable.

5. Keratosis of Extremities.

Gaucher* describes two varieties of primary keratosis affecting palms and soles, not to be confused with the secondary keratosis, with a similar eruption, in chronic eczema, psoriasis, pityriasis rubra, dermatitis herpetiformis, and syphilis.

The primary essential keratosis is sometimes called "keratoderma," but it does not involve the dermis. It is characterized by symmetrical localized epidermal thickenings affecting more or less of the surface of palms and fingers and the soles of the feet. As a rule there are no subjective sensations, but occasionally these are severe. It may be congenital, and appears to be of tropho-neurotic origin and extremely chronic. Its causation is unknown. The affection can be diagnosed only by a careful consideration of the whole facts of the case and by its site. (Sometimes it is associated with nævus elsewhere on body, and sometimes with curved nails.) Treatment may remove the lesions, but recurrence is the rule.

6. Arsenical Keratosis.

This interesting manifestation can be diagnosed chiefly by the history and by the occurrence of other evidence of the arsenical intoxication, such as pigmentation, ulcers between fingers and toes, and sclerodactylism. Gaucher says the keratosis is of nervous origin, and is not due to an external traumatic cause. It is simply increased by manual work.

7. Verruca, or Wart.

Synonyms.—Wart ; Fr., Verruce ; Ger., Warze.

Definition.—A painless circumscribed overgrowth of the papillæ ; they may be hard or soft, and vary greatly in size, shape and situation.

* Gaucher, *op. cit.*, p. 215.

Symptomatology and Varieties.—Excluding warts of syphilitic or cancerous nature, there are various kinds grouped round the common basis of a skin papilloma.

Verruca Vulgaris, or the common wart, is a painless growth of varying size, most common on the hands. It may be single or multiple, is at first smooth, but as it grows larger becomes rougher, fibrous, and sometimes fissured. It is more frequent in children and young adults, and has a curious tendency to spontaneous disappearance. Owing to size and numbers or situation —*e.g.*, edge of nail—much inconvenience may be caused.

Verruca Planus, flat or sessile wart, occurs chiefly in elderly persons. It is a sharply circumscribed, pigmented, slightly raised, non-itching elevation of the skin, most common on the face or backs of hands or forearm. In old persons it is usually accompanied by other senile changes in the skin, and is of peculiar interest, as it not infrequently undergoes malignant changes.

Verruca Plana Juvenilis, small flat warts occurring in children in large numbers, usually on the face.

Verruca Filiformis, commonly seen on face, eyelids, and neck, as thread-like growths.

Verruca Digitata, a more pronounced form of the peliform wart, often constricted at base, most frequent on scalp.

The *Seborrhœic Wart* is an interesting variety. It is usually small and pale in colour ; occurs on the scalp, face, neck, and elsewhere on the body, and is often multiple. Thus it may occur in great numbers on the hands and forearms in size from a tiny pin-point to that of a hemp-seed, sometimes larger.

Etiology.—Probably in all cases caused by micro-organisms, as warts are almost certainly auto-inoculable and contagious. Majocchi identified a bacterium (*Bacterium porri*) which has been successfully cultivated and inoculated. It is possible that various bacteria are concerned. The gonorrhœal papillomata met with chiefly on palms and soles are apparently due to the gonococcus or its toxins ; and the same may be said of syphilitic warts.

Pathology.—The common wart shows dilated capillary loops enclosed in hypertrophied horny layers of the epidermis. The flat wart is due to acanthosis or hypertrophy of the

prickle layer. In the filiform and digitate varieties the papillary body is elongated and hypertrophied, but there is little thickening of the epidermis.

Treatment.—Warts are readily destroyed by caustics, by the thermo-cautery, or by firm pressure with frozen carbon dioxide. Fuming nitric acid, applied with a pointed wooden match, is often used (the surrounding skin should be protected with vaseline). Another good application is glacial acetic acid, painted on several times daily. Cataphoresis with sulphate of magnesium has been advocated. Multiple flat warts may disappear after treatment with salicylic acid; or after the administration of lime-water, half a pint daily (Sequeira), or small doses of magnesium sulphate.

Venereal Warts.—These are soft, red, moist, offensive, rapidly-growing warts, highly contagious and auto-infective, occurring chiefly about the male and female genitals or anus, sometimes near the mouth. They should be treated by careful attention to cleanliness and dusting with powders of oxide of starch, oxide of zinc, and calomel. If large they may be destroyed by pure carbolic acid, acid perchloride of mercury, or by excision with scissors or cautery.

There are also gonorrhœal papillomata, usually on palms and soles, but sometimes spreading to nearly the whole body. They are true papillomata, with thick, horny hyperkeratosis. They are said to occur three to five weeks after the onset of gonorrhœa. They may consist of isolated horny warts or of similar growths that have coalesced. They last several weeks as a rule, and the affection is rare.

8. Scleroderma.

Synonyms.—Sclerema adultorum; Sclerostenosis; Addison's keloid.

Definition.—An affection of the skin, usually chronic, characterized by thickening and rigidity, general or circumscribed, with more or less pigmentation. Apart from complications, it has a tendency to spontaneous cure in the long-run, or to end in atrophic changes.

Symptoms.—There are two forms—the diffuse and the circumscribed :

1. In the diffuse form the skin is hard, tense, shining, firmly bound down to the underlying tissues, and often has a brownish or yellowish pigmentation. It merges gradually into the surrounding healthy skin. There are few subjective symptoms, and the general health as a rule is not affected. At the same time there may be cramp-like pains, and there is a tendency to erysipelas, rheumatism, and other complications. The disease may be general, involving the whole body, which has a corpse-like pallor. Usually it affects a region. When the hand is affected in the later atrophic stage, it becomes hard, rigid, white, and cold. Sometimes the bones ulcerate through the contracted skin. When the face is attacked it becomes like a wax mask, and the rigidity under it prevents speech and mastication. In the thorax, respiration may be seriously impeded.

The disease may persist indefinitely apart from intercurrent complications. It may atrophy and disappear, leaving traces in the shape of various deformities.

The appearance of the skin has been aptly described as that of a bladder tightly distended with lard.

When the hands are affected, the fingers may become shrunken and rigid (sclerodactylism).

2. Circumscribed scleroderma, or morphœa, is often regarded as a different disease from the foregoing. It is characterized by the appearance of circumscribed patches of hard whitish skin, with a slightly raised or violaceous border. The shape is commonly rounded or oval, but on the limbs may have a band-like distribution. The colour suggests that of pure white (" visiting-card " of Mina) or old ivory. The patches are painless, and their sensation is not impaired. They are single or multiple.

Microscopically there is small-celled infiltration, followed by an increase of connective tissue in the dermis, with vascular narrowing and obliteration. The cause is unknown.

In neither form is the diagnosis likely to present any serious difficulty.

Treatment is most unsatisfactory. As a rule the only thing is to place the patient under good general conditions and await results. Massage, hot-air baths, galvanism, and X rays, are sometimes useful. Friction with simple ointments often affords relief. The injection of thiosianimin has been advocated.

Prognosis should be extremely guarded. Some cases recover spontaneously; some die of complications; others recover after the disease has run a protracted course.

9. Elephantiasis.

Synonyms.—Elephant's or Barbadoes leg; Elephantiasis arabum; Pachydermia.

Definition.—A chronic non-contagious affection of the skin and subcutaneous tissues, often in the legs and genitalia, characterized by great enlargement of parts and by cutaneous pigmentation and papillary overgrowth. In its specific form it is a tropical and subtropical disease due to an animal parasite, but there is also a pseudo-elephantiasis met with in any climate due to lymphatic obstruction from various causes.

Symptomatology.—The disease runs an extremely chronic course, and is usually ushered in by a febrile attack with pain and malaise. The parts most commonly attacked are the legs and genitalia. The general health is not affected, except at times by the frequent recurrence of febrile attacks which mark fresh invasions or extensions. The skin of the affected part becomes red and swollen, and pits on pressure; after several attacks the parts become permanently enlarged, and may attain enormous proportions. The scrotum or vulva, for instance, may reach the ground when the patient is in a sitting posture, and may weigh a hundred pounds or more. Beyond the mechanical discomfort caused by the tumour, there is no pain, except during the febrile attacks.

Etiology. — A disease of hot and humid climates. It appears to be favoured by racial heredity and bad environment. It is due to the presence in the blood of a specific pathogenic parasite, the *Filaria sanguinis hominis* or *Filaria*

bancrofti, which dwells in the main lymphatic vessels, and discharges its ova into the lymph-stream. The result is lymphatic obstruction due to mechanical blocking, and acute and chronic inflammation of the lymphatic vessels. Great hypertrophy of the subcutaneous tissues follows. The skin shows various eczematous and papillary changes, and varicose ulcers are common. When the disease is endemic, the filaria is stated by Manson to coincide with the distribution of a certain species of mosquito, which acts as intermediate host.

Non-tropical elephantiasis is met with as the result of long-continued lymphatic inflammation or obstruction, as the result of erysipelas, pregnancy (*phlegmasia dolens*, or " white leg "), prolonged eczema, varicose veins, and syphilis.

Pathology.—That of chronic lymphatic obstruction.

Diagnosis.—The only difficulty is in the early stage, which resembles erysipelas. The filariæ are easily demonstrated under the microscope. They are found most abundantly in the blood at midnight.

Treatment.—In early stages removal to another locality, with the administration of quinine and tonics, may check the disease. Galvanism and the X rays are of some service. When the growth is huge, the only efficient treatment consists in surgical removal of the thickened tissues.

In view of the definite cause of the malady, it may be hoped that before long a specific remedy capable of destroying the parasite will be discovered by medical science.

Prognosis.—Early in the disease ordinary treatment may be most beneficial. Surgery as a rule has excellent results in old-standing cases.

10. Xeroderma Pigmentosum.

Synonyms.—Achrochodermia pigmentosa (Crocker); Kaposi's disease; Angioma pigmentosum atrophicum (Taylor).

Definition.—A disease of the skin usually beginning in early childhood, characterized by the appearance of numerous freckles, together with atrophic changes in the skin, and later by malignant growths.

Symptomatology.—This is, happily, an extremely rare malady. It begins as a rule in the second year of life, in the form of abundant freckles of large size. Often there are repeated attacks of erythema on the exposed parts. The affected skin becomes dry, harsh, dark, and mottled, and there appear white pitted spots and minute telangiectases.

The skin eventually becomes shining and atrophic, and develops pigmented warty tumours. Sooner or later epitheliomatous growths supervene.

Etiology.—The disease is apparently due to a congenital defect of the skin, and it has been aptly compared to the changes in the senile skin, including pigmentation and atrophy with an exaggerated tendency to malignant developments. The only assignable cause so far is congenital predisposition, possibly or probably with an exciting factor.

Crocker agrees with the probability of Kaposi's views—namely, that the alteration begins in the papillary body and epidermis, and spreads from thence to the dermis, the pigmentation being due to the atrophy, as is often seen in other atrophies. Perhaps the vessels are the first affected, and, besides the above changes, determine the formation of telangiectases by collateral dilatation.

Treatment is of little avail, save to check suppurative processes.

Prognosis.—Bad. In the majority of cases malignancy supervenes within a few years.

CLASS X

NEW GROWTHS (NEOPLASMS)

1. Acanthosis Nigricans.

Synonyms.—Fr., Dystrophie papillaire et pigmentaire.

This is an extremely rare affection of the skin in which there is thickening of the skin of hands and other parts, with formation of numerous epithelial outgrowths (papillomatous), many of which are pigmented—hence the name *acanthosis*, proliferation of prickle cells; *nigricans*, blackening. The tongue and mucous membranes (vagina) may be involved, and sheets of dark warty growths develop about axillæ, bends of elbows, umbilicus, genitals, etc.

The disease appears chiefly in patients between thirty-five and forty-five years of age, and usually occurs in connection with abdominal cancer. The pathology is doubtful. Darier, who first described the condition, thought it might be due to implication of nerves in cancerous growths.

2. Cicatrix.

Synonym.—Scar.

"Cicatrix" is the name given to a connective-tissue formation covered in by epidermis. It is a process of repair of damage caused by traumatism or by inflammatory process causing loss of substance of the corium. The traumatic scar is distinguished from the pathological one which follows disease, such as lupus or syphilitic gumma. The essential condition, however, is the same. First there is formation of granulation tissue, which becomes gradually converted into soft, pink, and afterwards into dense, white connective tissue.

The scar then presents an area of connective tissue covered with epithelium. By its contraction it may cause depression or distortion and crippling of neighbouring parts. If the tissue be found in excess, it results in hypertrophic scar. As a rule the papillary surface of the skin is obliterated, and the scar is always hairless.

A depressed scar follows destruction of subcutaneous tissue. It often causes much disfigurement, especially when situated on the face or neck. The defect, however, may in many instances be remedied by the subcutaneous injection of paraffin. The operation requires special instruments and some amount of experience on the part of the medical man who undertakes it. In the author's hands it has yielded excellent results. Needless to say, rigid asepsis must be preserved throughout every step of the proceeding.

3. Keloid.

Synonyms.—Cheloid ; Alibert's keloid ; Fr., Kélie, Cancer tuberoux, Chéloide ; Ger., Knollenkrebs.

Definition.—A connective-tissue overgrowth, usually the result of traumatism, eventually of the nature of a hypertrophic scar.

Symptomatology.—Keloid is often described as a new growth resulting from wounds (false keloid), or spontaneously (true keloid) ; but both forms are indistinguishable and traumatism is probably almost always present. It has been well spoken of as an "exuberant scar." One or more whitish, firm nodular elevations, often with outstanding, claw-like processes (hence the name "keloid," or "crab-like"), develop slowly. The tumours are more often one or few in number, but may be exceedingly numerous and extensive. They are often met with over the sternum and chest, especially of women. Negroes are specially prone to attack, and there seems to be in all cases a personal predisposition. The course is extremely slow and spontaneous; disappearance takes place only in the rarest instances.

Etiology.—Obscure.

Diagnosis.—The distinction between keloid and hypertrophic scar is that the latter does not extend beyond the region of the original traumatism.

Treatment.—Unsatisfactory. Mercurial plasters and ichthyol (25 per cent. ointment) have been recommended. Thiosiamin (fibrolysin) can be injected into the scar tissue or its neighbourhood (10 minims of a 10 per cent. solution daily to forty injections). Mendel advises the continuous application of a 10 per cent. fibrolysin plaster, but adds that its action is extremely slow. Electrolysis is sometimes successful, especially in conjunction with fibrolysin and massage. Excision is not to be recommended, as it is almost invariably followed by recurrence.

4. Carcinoma of the Skin.

Synonyms.—Epithelial or skin cancer; Rodent ulcer; Fr., Cancroide; Ger., Epithelialkrebs.

Varieties.—"Epithelioma" and "carcinoma" are now generally held to be synonymous terms. This cancer group also includes rodent ulcer and Paget's disease. The various forms, such as superficial warts, tubercular, melanotic, and so on, are now regarded as merely representing differences in the site and the course of a fundamentally common malignant process.

Definition.—Primary carcinoma of the skin is a new growth of varying malignancy occurring in the skin or its appendages, often as the result of definite irritation, almost always in persons of forty years or upwards. There is atypical proliferation of the epithelium, which invades neighbouring structures where it is not normally present. In the later stages the glands are involved, and there are metastasis in various organs, cachexia, and death. Spontaneous disappearance is of the rarest occurrence.

Skin cancer may be classified clinically as superficial, deep, and papillary; as benign or malignant; pathologically as of the squamous or the small round or cuboid cells type; or anatomically according to its site, as the eyelid, nipple,

or tongue. The skin is often the seat of secondary metastasis from primary cancer of internal organs, or from a primary cutaneous growth elsewhere on the body.

For present purposes the following division will be taken :

I. *Superficial :*
- (*a*) Rodent ulcer.
- (*b*) Epithelioma.
- (*c*) Paget's disease.
- (*d*) Melanotic or pigmented cancer.

II. *Deep Nodular or Tubercular Forms :*
- (*a*) Epithelioma.
- (*b*) Carcinoma.
- (*c*) Secondary carcinoma.

III. *Papillomatous or Warty Forms.*

All forms of cutaneous carcinoma have certain features in common, such as hardness, appearance at or after middle life, tendency to recur after operation, progressiveness, with ulceration and serious cachexia.

I. (*a*) *Rodent Ulcer* (Jacob's ulcer ; lupus exedeus ; noli me tangere) is usually regarded by modern authorities as a special form of epithelioma of low malignancy, although a few dermatologists cling to the old view, which regards it as a distinct malady. Pathologically there is no special distinction between the two.

Rodent ulcer is most common on the upper half of the face, more especially on the eyelids near the inner canthus, at the root of the nostril and side of nose. It occurs rarely on other parts, such as the hand, the pubis, and even the vulva.

The ulcer may persist for years, or may extend rapidly into deep structures ; in the terminal stages it involves glands, rapidly sets up the cancerous cachexia, and ends in death. The typical ulcer is clean-cut, rounded, from 1 to 3 inches across, with sharply raised and hard, often everted, waxy-looking border (the connective-tissue barrier against invasion), and an uneven floor which yields a scanty, viscid discharge, and often presents a glazed appearance.

(*b*) *Epithelioma* occurs most often on the face, especially the lips, eyelids, and nose; but also on other parts of the body, as, for instance, the hands, penis, or vulva. A favourite site is the junction of mucous membrane skin—*e.g.*, the lips and anus—or the process may begin at the orifice of a

FIG. 12.—RODENT ULCER, PARTIALLY HEALED UNDER X RAYS; LATER HEALED COMPLETELY.
(Dr. Stopford Taylor's case.)

sebaceous gland. In any case it is almost invariably connected with some definite source of irritation, as, for instance, the smoking of a clay pipe in lip cancer. In most cases scratching and picking by the patient appear to accelerate, if not to originate, the process. It may develop in scar tissue, such as that of lupus, or in the keratosis of hands and feet due to arsenic. Frequently there are neighbouring pale, pearly papules of extension, or "satellites."

The cause of epithelioma is unknown, but it may well be of parasitic, possibly of ultramicroscopic, origin.

The process may begin in the shape of one or more small, hard, red, or waxy-looking papules, or may originate in a scar, nævus, abrasion, or wart. There may or may not be

FIG. 13.—PRIMARY CARCINOMA OF SKIN, WITH HERPES ZOSTER DISTRIBUTION.

a certain amount of itching and pain. After a time the new growth breaks down and forms the epitheliomatous ulcer, which is rounded or irregular in shape, has sharply-defined, raised, waxy borders, an uneven floor, and a scanty discharge. The chief characteristics of the superficial form is their benign and chronic nature. There is little or no pain, extension is extremely slow, the disease may last for many years, and there

is little tendency to invade deep structures or to involve the glands. The general health does not suffer. If untreated, the disease, after many years of benign existence, may suddenly develop malignant characters with rapidly fatal results.

It will be convenient here to describe the deep-seated or tubercular form. This variety may begin as small, firm,

FIG. 14.—PRIMARY CARCINOMA OF SKIN, WITH DISTRIBUTION RESEMBLING THAT OF SHINGLES.

subcutaneous nodules of purplish colour surrounded with an areola. As a primary disease it is rare. The accompanying illustration, a case under the author's care, shows the curious tendency sometimes exhibited by cutaneous cancer to affect a definite nerve area. In this instance the disease was actually diagnosed and sent to hospital as one of

herpes zoster. The papules gradually enlarge, and sooner or later break down into deep excavated ulcers with everted, purplish edges and a thin, offensive discharge. The ulcer spreads at its edges, and rapidly involves deep structures, including muscles, cartilage, and bone. The glands are involved, there is metastasis in various organs; the patient suffers severe lancinating pain, and eventually sinks from the combined effects of sepsis, hæmorrhages, wasting, pain, and exhaustion. When ulceration occurs, the process becomes complicated with pyogenic and other invading bacteria. There is, in fact, a toxæmia or septicæmia added to the carcinomatous invasion.

(*c*) *Paget's Disease* (see p. 210).

(*d*) *Melanotic or Pigmented Carcinoma* is often mistaken for melanotic sarcoma, but the majority of these growths are carcinomatous. It originates in a mole, which under certain unknown influences takes on rapid malignant growth, with marked tendency to infect neighbouring skin, glands, and internal organs. The malady is extremely malignant. It is therefore of extreme importance to recognize the earliest signs of irritation in a mole, and, if the latter be in an exposed position, to advise its removal as a preventive measure.

II. *Deep-seated or tubercular forms* have their origin in the subcutaneous tissues; their course is much the same as the deeper forms of superficial tumour.

III. *Papillomatous forms* begin usually as a warty growth, varying in size from a small pea to a large cauliflower. The surface may be dry and horny, or may be soft, fissured, and the seat of an offensive discharge. Sooner or later the warty growth ulcerates and develops a typical epitheliomatous ulcer of a malignant type.

Etiology.—Age predisposes, and irritation is a frequently exciting cause. Nothing is known as to any specific pathogenic agency concerned.

Pathology.—The fundamental feature is epithelial proliferation, which starts in the epidermis or in the lining of the cutaneous glands, and gradually pushes down prolongations of atypical epithelium into the corium. In the squamous-cell

type the cells are compressed in places into concentric form, the so-called "epithelial nests" or "pearls." In Paget's disease there is much œdema of cells, which are swollen and have the nucleus pushed to one side, and undergo vacuolation. The process is accompanied by infiltration and inflammatory changes in the corium. In the squamous type the cells of the middle layer undergo more or less cornification, and assume a less malignant type. In the basal type the cells are cuboidal and malignant, with a tendency to vacuolation and colloid change, the latter causing the cylindrical spaces which give rise to the term "cylindrical" or "cylindriform" cancer.

Secondary cancer of the skin is usually the reproduction of the primary growth.

Diagnosis.—It is of the utmost importance to recognize the early signs of cutaneous cancer, as upon that recognition may depend the life of the patient. Any hypertrophic or ulcerating growth on the skin (or mucous membranes) of a patient past middle age should be regarded with suspicion. Where any doubt exists, immediate and radical surgical operation is indicated. This applies specially to moles or other pigmented growths.

Lupus vulgaris is recognized by its occurrence at an early age, by its more diffuse growth, and by its extremely chronic course and tendency to formation of scar tissue. Above all, the patient responds to the Calmette reaction test applied to the conjunctiva, to the von Pirquet skin test, or to that of ordinary diagnostic tuberculin. It should be borne in mind that cancer may develop in *lupus* scars.

Syphilitic ulcerations are more rapid in their course, and have a tendency to heal in the centre. There is also the history and the presence of concomitant symptoms. In doubtful cases it is wise to try a short course of antisyphilitic treatment. In cancer of the tongue a history of smoking and of syphilis is nearly always obtainable.

Treatment.—The proper course is to excise or destroy the growth, without a moment's loss of time, as soon as its nature is suspected.

The rodent ulcer was formerly treated with a paste of arsenious acid and gum arabic spread thickly upon lint and covered in with oilsilk. The application is painful, and its action difficult to control. Latterly it has been superseded by the X rays and radium, both of which give excellent results in appropriate cases. An excellent caustic for the purpose is frozen carbonic acid gas. Firm pressure for forty seconds is required over portions of the growth, until the whole surface and edges are destroyed. Finsen's photo-therapy answers in some cases, but it is tardy, feeble, and untrustworthy, compared with frozen carbonic acid. In the author's opinion, there is no method to compare with free and early excision of the morbid growth. Under the conditions of modern surgery pain and risk are reduced to a minimum, while the compensatory advantages of quickness of recovery, thoroughness of removal, and greater chance of subsequent immunity, are conspicuous. As the result of his experience, the author earnestly impresses upon all medical men, faced with a doubtful or declared malignant invasion of the skin, the maxim: "When uncertain, operate; when certain, operate; as a precautionary measure, operate."

The high-frequency electrical current relieves the pain, at times agonizing, although it fails to cure the disease. To attain that amount of relief without narcotics, which have to be used with ever-increasing dose and frequency, is no small therapeutic advance.

The only treatment admissible for Paget's disease of the nipple is complete excision of the breast and connected glands, and free excision in the extremely rare event of its occurrence elsewhere on the body surface.

Prognosis.—Rodent ulcer may go on for ten, fifteen, twenty years or more. Superficial epithelioma may persist for years without making any serious inroads upon the general health, and if completely removed may be regarded as cured. The outlook in the deeper forms depends on the stage to which the disease has reached before coming under the medical attendant's notice, upon the good sense and decision of the

patient, and upon the tact and judgment of the physician. Later stages, with enlargement of glands, excessive pain, and cachexia, are as a rule absolutely hopeless.

From time to time patients come under notice who have thrown away the precious early days of invasion by submitting to the fraudulent wiles of the quack. They usually incur a great deal of unnecessary suffering, and are placed beyond hope of human relief. No civilized people and no enlightened government should sanction the practices of such unlicensed persons. Medical men, who know the evil, should never weary in denouncing the reckless cruelty and wickedness of the so-called " cancer-curer."

5. Sarcoma of the Skin.

Definition.—A rare malignant new growth of the skin, usually primary, of the embryonic connective-tissue type.

Symptomatology.—Sarcoma may occur at any age, and start from normal skin, but more commonly originates in a pre-existing nævus or mole. They are smooth, hard growths, as a rule causing little pain. Sometimes they may show little change in colour from that of normal skin, while at others they are deeply pigmented or black. They may run an extremely chronic course, or may ulcerate rapidly, and the melanotic varieties are specially apt to involve internal organs with metastatic growths.

Pathology.—The type is that of the sarcomata—namely, a growth of cells of embryonic-tissue type, consisting of round or spindle-shaped cells (or of a mixture of them) with abundant bloodvessels and scanty stroma. As a rule the melanotic sarcoma, which is the most malignant kind, springs from a mole or pigmented wart. Many growths formerly described as sarcomata are in reality carcinomata.

Treatment. — Prompt surgical measures afford a slight chance of recovery, but recurrence is the rule. Disappearance has been reported under injections of Coley's fluid.

6. Paget's Disease of the Nipple.

Synonyms.—Malignant papillary dermatitis; Epitheliomatosis of the nipple; Fr., Epithéliomatose eczematoide de mamalle.

Definition.—Paget's disease is a malignant affection of the nipple and areola, resembling eczema in its early stages, but later developing into a carcinoma of the nipple and mammary gland.

Symptomatology.—The disease occurs usually in women between the ages of forty and sixty years. It commences with reddening and burning and itching in the nipple or areola. This becomes crusted, raw, and exudes a clear viscid fluid. The nipple gradually becomes contracted, and feels to the touch like "a button or coin wrapped in a handkerchief." After a time infiltration of the skin and subcutaneous tissue follows, and the disease runs the course of an ordinary breast cancer. Scattered over the red area are characteristic small points of smooth, dry skin.

The disease is usually confined to one nipple, the left by preference. It sometimes occurs in man, and has been found in rare instances on the scrotum, penis, and perineum.

Pathology.—The early stage is that of a chronic dermatitis followed by formation of epithelial crusts, dilatation of bloodvessels, small-cell invasion, and so on. The cancerous developments may be superficial or deep.

Diagnosis.—It may be confounded with eczema in the early stages; but Paget's disease may be recognized by the sex and age of the patient, the sharply-defined area of the disease, the distinctive infiltration, and the progress of the disease. Now and then the eczematous stage may go on for many years.

Treatment.—As soon as the disease is recognized, it should be freely and completely excised. Many cases of cure under the X rays have been reported.

Prognosis.—Grave; but free removal at an early stage should in most instances effect a cure.

7. Benign Cystic Epithelioma.

Synonyms. — Adenoid epithelioma; Fr., Hydadénome éruptif.

Definition.—An extremely chronic, benign affection of the sebaceous glands characterized by small growths of indefinite duration, composed of epithelial proliferation in the sebaceous glands.

This affection is of interest as a connecting link with malignant epithelial new growths. It is common on the face and chest, and, as there is no pain or inconvenience, the growths as a rule escape notice. In rare cases they become malignant.

Microscopically there is epithelial proliferation enclosing cysts, apparently of a colloid nature.

When recognized, it is advisable to destroy the growths with electrolysis or carbon dioxide snow.

8. Fibroma.

Synonyms.—Molluscum fibrosum, vel pendulum, vel non contagiosum (when generalized, it is known as Recklinghausen's disease).

Definition.—Fibroma is a condition characterized by the development of one or more (frequently multiple) connective-tissue new growths in various parts of the body. The tumours are usually firm, painless, sessile or pedunculated, rounded, and vary in size from a pin-head to that of a walnut, or now and then much larger.

Symptomatology.—The tumours commence in the subcutaneous areolar tissue, but sometimes involve the skin by stretching it to a remarkable extent. There may be only a single new growth, or they may be multitudinous. The single growth may be pedunculated and reach a great size, sometimes dragging down the skin in a great pendulous bag, much in the same way as happens with pendulous breasts. Sometimes the fibrous growth is absorbed, and the pouch of skin remains "like an empty purse." The tendency of the

disease is to be congenital, although the growths are not usually observed until five or ten years of age, and fresh tumours may appear all through life. As the result of injury

FIG. 15.—MULTIPLE FIBROMA (RECKLINGHAUSEN'S DISEASE). (Author's case.)

they may inflame or atrophy. The back and front of the trunk are favourite sites in the generalized cases.

There is a form in which the subcutaneous fibrous growth is diffuse and extreme, forming a nodular, wrinkled, and extremely disfiguring hypertrophy, met with in the so-called

"elephant man." It is sometimes associated with exostoses, and, according to Stelwagon, is really a combination of fibroma, elephantiasis, and dermatolysis.

In some instances neurofibromata are associated with true fibromata, and may be known by their tenderness. Freckles and dark pigmentary stains are sometimes found in cases of fibroma.

Fibroma may occur on any part of the body except the palms and soles. It has been noted on the mucous membranes of lips, tongue, and so on.

Etiology.—Little is known as to the causation of this affection. It is markedly hereditary, and may run through several generations or in several members of one family. It affects both sexes and all nationalities.

Pathology.—The growth is due to a hyperplasia of the subcutaneous connective tissue, although the precise point of origin is not settled. Some say it starts from the connective tissue of the corium, from the stroma of the fat globules, or the walls of the follicles. Recklinghausen thinks the starting-place is in the sheath of the nerves—in other words, that it is a neurofibroma, a view that is to some extent borne out by the occasional presence of a neurofibroma. The origin is probably multiple, and may be of a microbial nature. In many instances fibroma is associated with a stunted bodily growth and limited mental capacity. In a case under my care a whitish nodule was seen glistening through the choroid membrane on ophthalmoscopical examination.

Diagnosis.—*Multiple fatty tumours* are usually flattened and lobular, and rarely occur in large numbers.

Fibro-neuromata are painful and distributed along the course of nerves. They may occur at the same time with fibromata.

Multiple cutaneous cysts and wens, when numerous, may be confused with fibroma, but can be distinguished by the fact that when of moderate size they become adherent to the overlying skin and fluctuate.

Treatment.—Surgical measures alone are of any avail. Large tumours in inconvenient sites can be excised or re-

moved by ligature, galvano-cautery, or other method. Smaller tumours can be destroyed by electrolysis, which, properly applied to the base, causes them to shrivel up and drop off in the course of a few days. Fibrolysin has been used as a general remedy.

Prognosis.—The course of the disease cannot be arrested, although relief may be given by removal of individual tumours.

9. Yaws.

Synonyms.—Frambœsia ; Tonga ; Pian ; Peruvian wart ; Parangi (Ceylon) ; Coco (Fiji) ; Amboyna button.

Definition.—A tropical disease due to the invasion by a specific micro-organism (*Spirochæte pertenuis*). Its course is chronic, in stages resembling that of syphilis, with which some observers consider it identical.

Symptoms.—There is an incubation period of several weeks. The primary inoculation sore consists of a papule on lips, breast, or genitals. In about a week it scabs and ulcerates slightly, healing in two to eight weeks, and leaving a faint scar. A month later the secondary stage, an itching papular rash, appears on the face, and in a few days covers the body. The papules increase in size, become pustular and scabbed painless growths on a red granulating or warty base, somewhat like a raspberry (frambœsia). In about two months' time the rash usually disappears, leaving white faint marks. There is some fever and anæmia, but recovery usually takes place within four to six months.

Sometimes the lesions ulcerate and run a chronic course. In delicate subjects there may be a tertiary stage with deep ulceration and formation of growths resembling gummata, while deep fissures are met with on palms and soles, with destructive lesions of pharynx, larynx, etc., and nodes on the bones. Other results are chronic dactylitis, arthritis, and myositis, with profound anæmia, sometimes ending in grave or fatal cachexia.

Etiology.—The cause is a specific infection conveyed by contact, such as kissing and sexual intercourse ; less often

by the bites of insects. In 1905 Castellani discovered a delicate spirochæte—the *S. pertenuis*, closely resembling the *S. pallida* of syphilis. This organism has since been transferred to the higher and lower apes, and from ape to ape, with recovery of the micro-organism. It has also been inoculated successfully on syphilitic apes, showing apparently that the two diseases are distinct.

The disease is most common on the West Coast of Africa. As a rule one attack confers immunity, and is not hereditary, this absence of congenital taint marking it off sharply from syphilis. It is most common in children under ten, and is rarely contracted after the age of thirty-five.

Pathology.—A papillary dermatitis of specific origin, involving later all parts of the corium and epidermis. Some observers say there is no primary sore, and others that the serpiginous and deep tertiary ulceration are tuberculous or syphilitic.

Diagnosis.—This can be made by the discovery of the spirochæte.

Treatment.—General hygiene, good food, and tonics. *Locally*, antiseptics. Salvarsan should be tried.

Prognosis.—Usually good; recovery in a few months in those of good constitution.

10. Granuloma Annulare.

Synonyms.—Erythema elevatum diutinum; Ringed eruption; Lichen annularis, etc.

Definition.—A very chronic eruption consisting of painless elevated, flattened plaques or nodules, usually on the hands, wrists, and feet, rarely on face, elbows, buttocks, etc.

The lesions spread in an annular fashion, so as to form roughly a circle or oval of sharply-defined pinkish or bluish spots.

Pathology.—The process appears to consist of a circumscribed inflammatory process in the corium, with hypertrophy of the cells of the rete mucosum (acanthosis), followed by changes in epidermis.

Treatment.—The disease tends to disappear spontaneously. Ointments containing salicylic acid, ichthyol, resorcin, should be applied. In children the general health frequently requires attention.

II. Leprosy.

Synonyms. — Lepra arabum; Elephantiasis græcorum; Leontiasis satyriasis; Fr., La lèpre; Ger., Der Aussatz; Norw., Spedalkshed.

Definition.—Lepra is a chronic endemic disease due to invasion of a specific bacillus, the brunt of whose mischief may fall chiefly on nerves or on skin, with secondary changes, such as ulceration, destruction of bone and nerves, anæsthesia, paralysis, and general sepsis. As a rule it ends fatally.

There are certain defined stages of incubation, prodromal symptoms, and invasion.

Incubation may extend from one to two or three, or even ten, years and more. This slowness of development renders it extremely difficult to trace the origin of the disease.

The *prodromal symptoms* follow, and there is a variable period of malaise, sweating, debility, epistaxis, and so on, with more or less fever (compare the febrile stage of syphilis). The temperature falls with the appearance of the rash on face, limbs, and trunk.

From a clinical point of view, it is convenient to describe the disease under three forms:

1. Nerve or anæsthetic.
2. Skin, nodular or tubercular.
3. Mixed tubercular and anæsthetic, the rarest form of leprosy.

These varieties all arise from the same cause, and are determined by the fact of nerves and of skin being mainly attacked, or of both being involved. Up to a point the early changes are the same in all; smooth erythematous patches appear on the face and other parts of the body, and these are characterized by changes of pigment (increase or decrease), with a

darker coloured border. After a time they may become hyperæsthetic, but always sooner or later anæsthetic, and a similar nerve change takes place in regions outside the macules.

1. *Nerve or Anæsthetic Leprosy* is essentially a progressive trophoneurosis. Nerve symptoms are marked from the first in the macules, with hyperæsthesia tingling neuralgic pains in various parts of the body. Pigmentary changes follow, and may lead to white, rounded, symmetrical smooth patches with reddish border, that become at length anæsthetic, or to deeply pigmented macules. In both hairs are shed and sweating ceases. Next comes a bullous eruption, ending in ulcers and scars. The larger nerve trunks are involved in new growth, which at first presses on them and causes hyperæsthesia, and later destroys the nerve tissue, thus setting up anæsthesia and various palsies, sensory disturbances and trophic injuries. Mutilation is common, chiefly in hands and feet ; digits may slough away, or bones be absorbed. Muscular atrophy often results, the nails and hair fall off, the wrists drop, and the hands are fixed in a claw-like position (*main en griffe*). The mucous membranes of the mouth and nose may become anæsthetic ; while a similar change in the conjunctiva leads to purulent conjunctivitis, ulcer of cornea, iritis, and progressive destruction of sight. The gums shrink and the teeth fall out. The hair falls from the scalp and the rest of the body, although the disease never directly attacks the scalp.

2. *The Skin, Nodular or Tubercular (Lepra Tuberosa) Forms.*— In these the macules develop into tubercles, which also arise from normal skin ; they may be of the colour of the skin, but are more usually of a brownish-red. They are firm to touch, rounded or oval, of the size of small shot up to a walnut, while the surrounding skin is often much reddened and thickened. At first they are hyperæsthetic, but later they become anæsthetic. Large areas of skin, especially on the limbs, may form thick, hard plates. The face may be covered with nodules, and the deepening of the normal lines and formation of deep wrinkles and furrows gives a leonine expression, the

" leontiasis " of the ancients. The ears also are commonly greatly thickened and lobulated.

The nodules sometimes appear first on the limbs or trunk. They affect especially the buttocks, the elbows, extensor surfaces of arms, wrists, and fingers. They often attack the mucous membranes of the eye, nose, and mouth. The tongue may be greatly enlarged, and the nasal cartilages and bones destroyed, leading to a " saddle bridge." The laryngeal membranes may become thickened; and the onset of œdema render tracheotomy necessary. This stage may go on for years, with fresh crops of nodules. Sooner or later ulceration sets in, and extensive injury results to bones, joints, tendons, lymphatic glands, and other structures. Should the patient escape general septicæmia, the nerve type may succeed the nodular; the more usual event, however, when the two forms occur together, is their appearance concurrently from the first.

Etiology.—Although leprosy is distributed throughout the world, it is mainly a disease of warm countries. It is due to the *Bacillus lepræ*, discovered by Armauer Hansen in 1872. Men are affected more often than women, and the disease occurs most commonly after twenty years of age, but may appear from infancy onwards.

The theory of infection through the agency of fish, advocated by Sir Jonathan Hutchinson, is not generally accepted. It seems probable that the bacilli are harboured and spread in houses, clothing, and environment generally, as in the case of tuberculosis.

The *Bacilli lepræ* occurs in enormous numbers on the nasal mucous membrane, and it is not unlikely that infection is spread from man to man by that agency. The organism has not been found free in Nature, but rats, guinea-pigs, mice, monkeys, and other animals, can be inoculated. It seems to be fairly well established that prolonged contact with infected persons is necessary to transmit the disease, and even then it does not necessarily follow, as in the case of nurses, medical men, and others, who have lived unscathed for many years in leper colonies. Flies carry the bacilli for several days in

their intestines, and may thus convey the infection to fish (see Hutchinson) and other articles of food.*

Pathology.—The *Bacillus lepræ* is a delicate rod-shaped, straight or slightly curved bacillus, from one-half to three-fourths of a red-blood corpuscle in length. It closely resembles the tubercle bacillus in appearance, but is much more difficult to cultivate in media outside the body. Both tubercular nodules and nerve changes are due to the presence of the specific organism ; in the skin lesions the bacilli occur in enormous numbers, but they are relatively few in the affected nerves, and then mainly in the sheaths. The bacilli lie mainly in the lymphatics, are intracellular (" lepra cells "), and there are a few characteristic giant cells with many nuclei, as in lupus and other forms of tuberculosis.

Dr. M. T. Clegg, of the Philippine Islands, succeeded in 1909 in cultivating from the spleen and skin nodules of typical cases of leprosy an acid-fast bacillus which grew on agar in symbiosis with amœbæ. The bacillus was separated, subcultured, and inoculated into guinea-pigs, which developed at the site of inoculation, in some instances, lesions bearing a strong resemblance to those of leprosy in man, and the animals died three or four weeks later.

Dr. F. W. Twort in 1910 showed before the Royal Society of Medicine that the leprosy bacillus could be grown upon a medium containing ground tubercle bacilli.

Experimental inoculation of human subjects has produced doubtful results in a single case.

In the nodular form the chief changes are in the corium, with the formation of a kind of granulation tissue, resembling that of syphilis and of tuberculosis, but less vascular, and slower in their increasing as well as in their retrogressive changes.

In the affected nerves fibrils are destroyed, and replaced by connective tissue. The process apparently does not extend to the brain, but in some few cases changes have been de-

* Jordan refers to Couret (*Journal of Experimental Medicine*, 1911, xiii. 574) that multiplication of the leprosy bacillus occurs in inoculated fish, frogs, turtles, and other cold-blooded animals (*op. cit.*, p. 349).

scribed in the spinal cord. A useful sign of nerve leprosy is thickening of the ulnar nerve at the elbow.

Diagnosis.—Leprosy in its advanced stages can be recognized at a glance by anyone familiar with the disease. In early stages it may be confused with various skin affections. The discovery of the bacillus removes any doubt. It may be found readily in the nodules, but not in epidermis, muscles, bones, or joints. The excision of a small nodule, and a microscopical examination of a stained section, will settle the question.

From syphilis lepra is distinguished by the colour of the lesion, the nodules of which are smaller, rounder, and more rapid in their course, and are not anæsthetic, while they show the *Spirochæte pallida*.

The nodules of lupus are smaller, softer, and often set in cicatricial tissue. They are of an apple-jelly colour, and contain the *tubercle bacillus*, although it is difficult to find.

In early *mycosis fungoides* the patches are redder and more like eczema, and there is no loss of sensation.

The smooth morphœa patch of circumscribed *sclerodermia*, with its purplish edge, may be differentiated by the absence of anæsthesia. The same test excludes vitiligo and various pigmentary conditions.

Syringomyelia often closely resembles nerve leprosy, but it has no pigmentation, while sensation is only partially lost—namely, heat and cold sensation disappear, but tactile sense remains ; moreover, it does not attack the face.

The history of exposure to infection is an important point as diagnosis.

Treatment.—General hygienic measures, good food, warm climate, and so on, are of value.

Internally.—General tonics. Chaulmoogra oil and Gurjun oil are of some therapeutic value. Hypodermic injections of mercury have been advocated.

Isolation of infected persons is undoubtedly of value where it can be practised. In Norway, careful segregation has been followed by a reduction of cases from 2,890 in 1856 to 577 in 1900.

The isolation from severe cases of nodular leprosy, by Deycke,

of a characteristic organism, termed *Streptothrix leproides*, led to the further discovery of an active principle residing in the lipoid portion of the chemical constituent of the culture. This substance, called "nastin," when injected hypodermically, gives rise to a violent reaction in leprous tissue. When activated by chemical combination with benzoyl chloride, the fat surrounding the lepra bacillus is removed, it becoming itself "doomed"—in the words of Professor Deycke. Laryngeal and bone lesions have cleared up after its use, and for over four years this method of treatment has been adopted in Turkey and elsewhere, with encouraging results. Later reports, however, have not been so satisfactory.

Externally.—Careful antiseptic treatment of ulcerations. Friction with Chaulmoogra oil. The X rays are sometimes beneficial.

Prognosis.—Unfavourable. Now and then a case appears to recover. The tubercular form is most rapidly fatal, within a period of from one to ten years; while the anæsthetic form may last twenty years or more. Death may be due to sepsis and exhaustion, but more commonly to intercurrent disease.

12. Lupus Erythematosus.

Synonyms.—Lupus erythematodes; Seborrhœa congestiva; Ulerythema centrifugum (Unna) vel atrophicans (Morris); Fr., Scrofulide erythemateuse, Erythème centrifuge.

Definition.—Lupus erythematosus is an inflammatory affection of the skin, usually chronic, characterized by cellular infiltration and by sharply-defined, more or less scaly patches, followed by atrophic scarring.

Symptomatology. — Locally the disease begins as small, slightly raised erythematous spots. Two varieties, the *discoid* and the *disseminate*, are described. The *discoid* spots fade on pressure, have a red raised border, with a yellowish crust in the centre, connected with a plug of sebum fitting into a dilated sebaceous duct. These primary spots enlarge at their circumference, and are usually symmetrical. In the *disseminate* variety crops of spots unite into large patches. The borders

of the patches are irregular, hyperæmic, sharply defined, raised, and often show comedones. The central portions gradually grow white, and show the characteristic superficial scarring without ulceration.

When the yellowish central scab or crust can be detached, with its shaggy under-surface of little sebaceous plugs, it is absolutely diagnostic. Apart from formation of a crust, the dilated follicles of the affected area may be characteristically plugged with dirty-grey sebum and epithelial débris. The colour of the edges and the thickening vary much in degree, but the lesions are always dry, chronic, inflammatory, non-ulcerative, with a tendency to scale, and ending in chronic atrophy.

The disease is one of adult life, and rarely attacks either the young or the old. It is more frequent in women than men. It most commonly affects the face, scalp, and ears, but rarely appears on the hands, toes, or any part of the body. Its most typical site of election is the bridge of the nose and cheeks in the well-known butterfly (papilionaceous) or bat form. In this position it may involve the mucous membranes of the nose or mouth. On hairy regions it is followed by permanent baldness. Occasionally it tends to some destruction of the nostrils and of the lobes or rims of the ear. On the scalp it forms irregular-shaped areas, with marked central atrophy and a slightly raised and scaly border. A few hairs are generally left on the swollen surface.

Rarely the erythematous element is exaggerated, and we find a type in which erythema or telangiectasis is followed by scarring. This so-called *telangiectatic lupus erythematosus*, however, may be one day traced to another source. As an extremely rare occurrence, lupus erythematosus may become generalized, either starting as an acute attack or developing from a chronic form. It is attended with fever and constitutional disturbance, and is likely to end in death.

There is a tendency to relapse in this disease, and in some cases the process extends independently, at times involving large areas and causing great disfigurement.

Etiology and Pathology.—The causes of lupus erythematosus are obscure. It is three or four times more common

in women than in men, and as a rule develops between eighteen and forty years of age. In many cases a tubercular history is found, and it seems likely that tubercle is at the root of some cases. In support of this view is the fact that a positive conjunctival reaction has been obtained with the Calmette test in a certain number of cases of lupus erythematosus, reaching to 40 per cent. or more of the discoid forms (Sequeira). As an angioneurotic process, it may perhaps be symptomatic of various toxæmias (as in tuberculosis), or of other reflex or central disturbances. The author has found ulerythema often associated with valvular or other circulatory disease. In one case a diagnosis was made of myocardial weakness due to bowel toxæmia (chronic constipation).

Dr. Alfred Eddowes finds cell-infiltration further back along the bloodvessels than is generally believed to be the case. Quite a large vein can sometimes be found blocked and disappearing in the centre of a hyaline degeneration. Where such a nodular, typical lesion occurs, a common ending is by the breaking through of the epidermis, the escape of a serous discharge and formation of a pitted scar, not unlike that left by smallpox.

The so-called " folliclis " of some authors—a lesion looked upon by them as a distinct disease—in his opinion, is the typical nodular elementary lesion of *lupus erythematosus*, as above described, a view held by him for many years past.*

The deep-seated nature of the lesions he thinks has been overlooked by dermatologists owing to their common custom of taking skin specimens too superficially. They do not take sufficient subcutaneous cellular tissue to enable them to follow under the microscope the changes in and around the radicles and trunks connected with the vascular supply of the skin.

Pathologically the process appears to begin with dilatation of the bloodvessels and lymphatics of the upper part of the corium. This is followed by dense small-celled infiltration of the corium. The epidermis at first shows hyperkeratosis, and

* See the *Medical Press*, December 30, 1908, p. 726.

eventually becomes extremely thin by absorption of the prickle layer. The round cells in the corium undergo atrophy and absorption, ending in scar formation. There are no giant cells, tubercle bacilli, or other evidences of tubercular infection. The sebaceous and sweat glands, at first enlarged, share in the general final atrophy.

FIG. 16.—LUPUS ERYTHEMATOSUS (ULERYTHEMA CENTRIFUGUM), SHOWING SYMMETRY, WIDE DISTRIBUTION, AND SCARRING (BOTH EARS WERE AFFECTED).

(Dr. Norman Meachen's case.)

Diagnosis.—Lupus erythematosus may be confused with *lupus vulgaris*, certain *syphilides*, *acne rosacea*, *alopecia areata*, and chilblains. *Lupus vulgaris* is distinguished by its apple-jelly nodules, tubercles, and ulceration, confirmed by Calmette's ophthalmo-reaction.

The late *syphilides* are firmer, ulcerative, asymmetrical, yield to antisyphilitic remedies, and leave scars that are as a rule pigmented. *Acne rosacea* does not scar, and its edges are not sharply defined, while it shows papules and pustules as

well as erythema and telangiectasis. *Alopecia areata* is known by its rounded outline, exclamation hairs, and by the absence of a raised erythematous border. *Chilblains* at times so closely resemble lupus erythematosus that the only means of differentiation is by the test of central scarring and the occurrence of chilblains in winter. Although lupus erythematosus is a well-marked disease, it may nevertheless be most misleading in unusual sites. The author showed a case at the Dermatological Society of Great Britain and Ireland in which a patient had been treated for syphilis by various leading dermatologists. He himself regarded the affection as specific for some time, but ultimately diagnosed it as lupus erythematosus involving the whole right hand and part of forearm. The patient recovered, and was able to return to his occupation of watchmaking.

Prognosis.—The disease is dangerous only in the excessively rare generalized form. At the same time it is apt to be rebellious to treatment, and may end in much disfigurement, and even last a lifetime.

Treatment.—Internal treatment is unsatisfactory. Nor can any trustworthy results be claimed for local measures. In the early stages it is usual to apply soothing drugs, such as calamine. Speaking generally, more good is to be hoped for from mild than from severe measures. In the chronic stages sulphur, resorcin, salicylic acid, and various stimulants, may be tried. Some advocate the continuous use of collodion to which salicylic acid or some other drug has been added. Hebra recommends the forcible rubbing of the scales with a piece of flannel saturated with equal parts of soft soap and spirit. Electrolysis or linear scarification is sometimes useful. The X rays do not appear to be of much value in this affection, but good results have been obtained from the high-frequency current, from the use of which the writer has seen much advantage. Carbon dioxide snow sometimes yields brilliant results. When a positive tubercular test has been obtained, treatment by tuberculin is advisable, together with the prolonged use of antiseptics, which can be conveniently applied in the form of Unna's No. 88 plaster (carbolic acid, mercury, etc.).

13. Myoma Cutis.

Synonyms.—Dermomyoma ; Liomyoma cutis.

Definition.—A benign neoplasm consisting of one or more small tumours of the skin, composed of muscular fibre.

Symptoms.—Small firm tumours (usually multiple), more or less tender on firm pressure, develop on the trunk or upper extremities. They are subcutaneous and freely movable, either nodules of the size of a lentil, round or oval, or small reddish tumours the size of a pea to that of an almond, sessile or pedunculated. They are painless except by pressure on neighbouring nerves or when inflamed : are of slow, definite persistence, non-malignant, and do not recur on removal.

Etiology and Pathology.—The disease is rare and its origin obscure. It usually appears in adult life (twenty-five to sixty years), and has been shown to consist of unstriped muscular fibres with some yellow elastic fibres. In one case under the author, a mother and brother were similarly affected, the left forearm being implicated in all three patients.

They may be variously combined with connective and other tissue to form fibromyoma, angiomyoma, and lymphomyoma. In one case Bernier found cutaneous associated with uterine myomata.

Treatment.—Removal by the knife is the only method, but is not required unless the tumours become tender.

14. Mycosis Fungoides.

Synonyms.—Granuloma fungoides ; Inflammatory fungoid neoplasm ; Fr., Lymphadénie cutanée.

Definition.—A chronic, probably infective malady characterized by an almost invariable premycotic stage of pruriginous erythema lasting for months or years, followed by a formation of soft, red, fungating tumours. The malady is progressive and fatal.

Symptomatology.—Locally the disease shows itself first in the shape of well-marked erythematous patches, the size of a

sixpence to that of one's palm, or larger. They are bright red, dry, itching, and are often mistaken for eczema, especially when the erythema is patchy and diffuse, or even generalized, as sometimes happens. The red colour gradually turns to brown, and after a variable period the second part of the premycotic stage, that of infiltration of the patches, occurs; on the face, hands, and other parts of the body, appear brick-red patches resembling *erythema nodosum*. These patches may become bullous or vegetating, or they may disappear, while others recur in crops. Occasionally they are of a psoriasiform type. This period may go on for ten or even twenty years before the onset of tumour formation. The latter stage is characterized by red, lobulated, circumscribed tumours, the size of a pea to an orange, springing from every part of the body, and sometimes from the mucous membranes of the mouth. These tumours may disappear spontaneously, but the general development is progressive. The tumours form mushroom-like growths, with a tendency to break down sooner or later into sloughing, bleeding, and unhealthy ulcers, which may sometimes cicatrize, while at others they may destroy the tissues down to the bone. General sepsis may ensue, but in any case the bodily health becomes seriously affected, and the patient dies of exhaustion or of intercurrent disease. The tumours may be confined to one part of the body, or may become generalized. The viscera are not affected (except sometimes the spleen, which is enlarged), but there may be general enlargement of glands (adenopathy).

Etiology.—This is unknown, but the disease is probably due to a chronic inflammatory neoplasm resulting from a specific infection, although so far no micro-organism has been identified. It is commonest between the ages of forty and sixty years, but may occur from twenty to sixty years.

Pathology.—In the premycotic stage the changes are chiefly in the papillary region, but those of the tumour stage are in the dermis. In both stages the change is fundamentally the same. There is an abundant formation of small round cells of embryonic type in the meshes of the fibrillary network.

Some regard the process as one of lympho-sarcoma, but that is hardly consistent with the frequent spontaneous disappearance of the tumours and with other clinical facts.

Diagnosis.—In the premycotic stage *mycosis fungoides* may be confused with eczema, erythema multiforme, psoriasis, urticaria, and so on. It may, however, be usually distinguished after a time by its persistency, its itching nature, its peculiar colour, and other characters. At the same time it is well to bear in mind, when dealing with obstinate pruriginous inflammation of the skin, the possibility of the affection being a premycotic stage of mycosis fungoides.

Treatment.—Internal treatment is of little use; externally ulcers should be treated with antiseptics.

The only therapeutic agency of any avail is that of the X rays, which may be tried cautiously upon small portions of affected skin.

Prognosis.—Unfavourable. Death usually follows within three to ten years; sometimes it may be delayed for twenty years, or may occur in six months.

15. Rhinoscleroma.

Synonym.—Scleroma.

Definition.—An extremely rare new growth attacking almost exclusively the nasal centres, upper lips and adjacent tissues, resulting in hard, circumscribed nodular swelling and deformity.

Symptoms.—The invasion is slow and painless. There is first a fœtid discharge from the nose and gradual swelling of the mucous membranes without ulceration, leading to nasal obstruction. The nostrils and upper lip become slowly thickened. The skin may be of normal colour or of a brownish tint. Telangiectases are usually present. It may cause great deformity, with huge projecting upper lip and hypertrophied nose.

Etiology.—The disease appears from ten to fifteen years of age, and is most often met with in Austria and Germany. It is almost certainly due to invasion by a specific micro-organ-

ism, the so-called " bacillus of Fresch." The growth is of the nature of a chronic inflammatory neoplasm, with giant cells, capsulated bacilli, isolated or in chains (Fresch).

Prognosis.—Bad so far as the growth is concerned. Fortunately the general health is never affected.

16. Xanthoma.

Synonyms.—Xanthelasma citiligoidea; Fr., Plaques jaunâtres des paupières.

Definition.—A disease characterized by connective-tissue new growth in the corium, appearing as chamois-yellow plates or nodules.

Varieties.—There are two distinct forms : *Xanthoma planum* or *simplex* and *xanthoma tuberosum* or *multiplex ;* the latter including : *xanthoma diabeticorum.*

Xanthoma Planum, the flat macular variety, is a common disease in women. It begins usually in the eyelids as small patches of a chamois-leather colour. They may go on slowly for years, or may coalesce, but they do not undergo spontaneous devolution. There are no subjective symptoms, but the condition is disfiguring. Rarely it occurs on other parts.

Xanthoma Tuberosum or Multiplex.—This form is characterized by the appearance of multiple (usually numerous) chamois-yellow nodules from the size of a pea to that of a hazelnut, or even two or three times the latter size. They may also attack mucous membranes. Their favourite site is on hands and feet (including palms and soles), knees, elbows, and buttocks. There is no tendency to cure, although the disease has been known to disappear spontaneously. Its lesions grow slowly, but less so than the flat variety, and may reach full development within a few months.

Etiology.—The causation is obscure.

Xanthoma planum is a rare affection, occurring chiefly in adults, and in 60 per cent. of cases in women. It is pretty constantly associated with migraine, and less often (one-sixth of cases—Hutchinson) with jaundice.

Xanthoma tuberosum or *multiplex* is a rare affection attacking all ages and both sexes. It may occur in members of the same family, and shows a hereditary tendency, sometimes skipping a generation.

Pathology.—Xanthoma is a benign connective-tissue growth which undergoes partial or complete fatty degeneration. The fat cells are contained in the meshes of the connective tissue. Opinion differs as to their inflammatory origin, though the balance appears to be in favour of that condition as the result of toxic processes.

The epidermis is unchanged in both forms, except for slight vacuolation and pigmentary deposit in the cells of the rete. The difference in xanthoma tuberosum is that there is a *firmer stroma* of connective tissue.

Treatment. — Excision or electrolytic destruction of the growth is the only satisfactory method. Multiple lesions may be dealt with by the application of a 25 per cent. salicylic acid plaster for several days, or by collodion containing 1 drachm of salicylic acid to the ounce.

Prognosis.—The lesions are persistent, and removable only by radical measures.

Xanthoma Diabeticorum.

This form differs in being nearly always associated with diabetes, and is characterized by an eruption of inflammatory papules which undergoes xanthomatous change.

Symptomatology.—The eruption begins as firm dull red papules from the size of a pin-head to that of a pea. It is as a rule scanty, but may be multiple and generalized. Its commonest sites are buttocks, elbows, and knees, but it may occur anywhere on the body. Unlike xanthoma planum and tuberosum, it is attended with itching, burning, and tenderness. The early reddish papules for the most part speedily develop chamois-yellow tops, due to the fatty degeneration of xanthoma. The papules are usually discrete, but sometimes coalesce and form small tumours.

The disease is extremely rare, and 90 per cent. of the cases have been reported in males. In a few cases albuminuria

has been found instead of glycosuria, or the sugar has appeared after the eruption. It appears to be due to some toxic influence.

Diagnosis.—The inflammatory red papules with tenderness and itching, and the presence of glycosuria, serve to distinguish this affection from xanthoma tuberosum.

Treatment is that of the diabetes.

Prognosis.—The eruption tends to disappear spontaneously within a few months or years.

CLASS XI

PARASITIC DERMATOSES

UNDER this heading some of the cutaneous diseases due to coarse parasites will be described.

No attempt has been made to include the minutest forms of vegetable and animal life (bacterial and protozoal) concerned in cutaneous diseases. These will be found scattered through the various pathological groups, as the erysipelas (streptococcal) under inflammation, and syphilis (spirochæta) under new growths.

I. VEGETABLE PARASITES.

1. Erythrasma.

Definition.—A rare parasitic disease, due to a vegetable parasite, the *Microsporon minutissimum*, met with chiefly in the genital and axillary regions.

Symptomatology.—The affection shows itself in dull or brownish-red patches, most commonly about the genital and neighbouring regions. The patches show a few fine scales; they are painless, do not itch, remain dry, and are usually discovered by accident. The general health is not affected, but they seem to occur more often in arthritic patients.

Pathology.—The *M. minutissimum*, the causal agent, was discovered by Burghardt in 1859. It is the smallest of the coarse fungi found on the surface of the skin. Microscopically its spores can be seen, by a high-power objective, in chains in the surface squames of the epidermis after soaking in liquor potassæ.

Diagnosis. — *Erythema intertrigo* is distinguished by its redness and moist exudation ; eczema, by its vesicles, crusts, and itching ; eczema marginatum, by its marked border and peculiar fungus.

Treatment.—Thorough scrubbing with carbolic or other antiseptic soap, and the inunction of ointment containing carbolic acid, ammoniated mercury, or salicylic acid. Sulphurous acid ʒii., glycerine ʒvi., aquæ rosæ ʒviii., is a good lotion ; or the patches may be painted with tincture of iodine.

2. Favus.

Synonyms. — Tinea favosa ; Honeycomb ringworm ; Fr., Teigne faveuse ; Ger., Erbgrind.

Definition.—A contagious disease of the skin due to the presence of a fungus, the *Achorion schönleinii ;* characterized by dry, sulphur-yellow, shield- or cup-shaped crusts (scutula), from the size of a pin-head to a pea ; met with on any part of the body, but usually on the scalp, and persisting indefinitely in the absence of treatment.

Symptoms.—The process begins locally as small circumscribed patches of the skin or scalp, with slight itching, and the appearance, after a few weeks, of the favus cup. On the scalp the cup (scutulum, or shield) is pierced by a hair. The cups are yellow, discrete, or confluent, and in the latter case may coalesce into sulphur-coloured mortary masses. The underlying skin becomes inflamed, sometimes suppurating, and in chronic cases may be depressed, owing to destruction of the epidermis and atrophic changes in the corium. The malady may attack any part of the body, and on the scalp is followed by alopecia, which is often permanent. The hairs become thickened, lustreless, and break off short. A peculiar " mousy " or damp-straw odour is often present. The process is extremely chronic, and without treatment may persist to the end of life. It is an extraordinary fact that there is comparatively little tendency to spread in a household, thus affording a strong contrast with ordinary ringworm. Thus, the author had a private patient under

his care, an Englishwoman of good social position, in whom the disease had persisted since childhood unsuspected. No particular precautions had been taken, but neither her husband nor children had contracted the disease.

The nails may be affected, and the discovery of the fungus alone differentiates the condition from other forms of onychia.

Etiology.—The disease is common in some countries, rare in others. Thus, it is common in France, and not uncommon in Scotland ; in London it is met with chiefly among Russian and Polish Jews of the East End. Favus is common in mice, and is communicated by them to cats, by whom the disease is commonly conveyed to man. It may, of course, be transmitted from person to person. In most cases infection takes place in childhood, but the fungus has no tendency to die out at the age of fifteen, as with ordinary ringworm. Want of cleanliness is a strong predisposing factor in the development of the disease.

Pathology.—The causative agent is a hypogenic fungus, the *Achorion schönleinii*, first described in 1849. The mycelial filaments permeate the interior of the hair, so that no medulla is to be seen. The scutulum is made up of filaments and a very large number of round, or more usually oval, spores with a granular nucleus ; or the spores may be arranged in short chains at the end of the mycelia. The base of the scutulum is lodged in a depression in the skin, involving more or less destruction of the subjacent epidermis. When grown on a nutrient agar medium, a yellow scutulum is formed. The fungus can usually be readily detected by soaking a portion of a crust or an affected hair in liquor potassæ, and examining under the microscope.

Diagnosis.—The characteristic mark is the cup, but that may be replaced by a dermatitis on non-hairy parts. Ringworm spreads in ring-like form, whereas favus is irregular in its extension, and the fungus is different from that of favus. In all doubtful cases a culture will settle the presence of favus.

Treatment must be patient and thorough. The first point is to remove crusts by soaking with olive-oil, and then scrap-

ing and washing with soap and water. The hairs round the lesion should be cut short, and diseased hairs epilated daily with forceps. Parasiticides should be rubbed into the affected part firmly for ten minutes at a time twice daily; sulphur, salicylic acid, corrosive sublimate, and chrysarobin, may be used for the purpose. The best remedy, however, is undoubtedly by the X rays. There is no need to be overcautious, because, as Norman Walker remarks, "the prognosis under other treatment is so hopeless that any risk, even that of permanent baldness, is justified."*

Prognosis.—The general health is rarely affected. The hair does not grow on denuded patches, but it may do so now and then in young persons. All cases are capable of cure by prolonged treatment.

3. **Ringworm.**

Synonym.—Tinea trichophytosis.

Definition.—Ringworm is a contagious disease due to the invasion of a vegetable parasite, the trichophyton (*θρίξ*, hair; *φυτόν*, plant), a fungus composed of straight or branching threads (mycelia) and spores. Ringworm is caused by several varieties of fungus, as recognized in cultures (Sabouraud).

Two chief varieties are the *Microsporon audouini*, or *small-celled fungus*, and the *Trichophyton megalosporon*, or *large-celled fungus*. As a matter of fact, there is not much difference in the size of the cells, but there are marked distinctions in their distribution and clinical characters. The spores of the small-celled variety are arranged in a mosaic outside the hairs, or in masses in the follicles and in the epidermis; while those of the large-celled are situated in the hair follicles or in the substance of the hair in the form of chaplets of beads or rosaries: if in the hair they constitute *endothrix*; if outside, *ectothrix*. The large attack the skin far more commonly than the small-celled variety; while the large extends more deeply into the skin and is highly pyogenic.

Small-spored ringworm is the more common in Scotland;

* "Introduction to Dermatology," 5th ed., p. 215.

in London it accounts for between 80 and 90 per cent., in Paris 60 to 70 per cent.; while in Italy nearly all the cases are those of trichophyton (Walker).

FIG. 17.*—HAIR FOLLICLE AND HAIR INFECTED WITH TINEA MICROSPORON. (After Sabouraud.)

Small-spored or mosaic ringworm shows itself first on the scalp as a rounded, partially bald patch. The hairs break

* From Gaucher's "Diseases of Skin," English Translation (C. F. Marshall, M.D.).

off short, have a "nibbled" appearance, do not lie straight, and are often darker than usual. The disease spreads at the edge, which is often red, and may be vesicular or crusted. There may be one or many patches, and they vary greatly in size.

A broken-off or twisted hair can be readily extracted. After soaking for a few minutes in liquor potassæ, it will be found to be sheathed in a mosaic of cells; some mycelial threads may at the same time be seen in the substance of the hair.

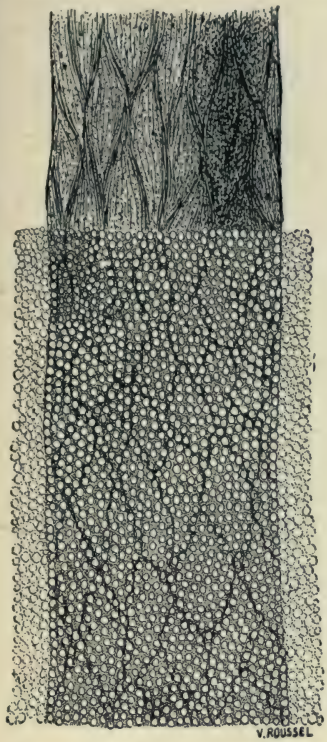

FIG. 18.* — MOSAIC OF TINEA MICROSPORON FORMING SHEATH ROUND HAIR.
(After Sabouraud.)

FIG. 19.†—TRICHOPHYTON MEGALOSPORON: ECTOTHRIX AND ENDOTHRIX.
(After Sabouraud.)

The broken-off ends of the hair are split up with a ragged, brush-like fracture.

Large-spored or rosary ringworm presents two chief clinical varieties: (1) A "fragile" form presenting a circular

* From Gaucher's "Diseases of Skin," English Translation.
† From Gaucher (*op. cit.*).

patch in which the hairs are broken off so short as to be called "bald ringworm," while the appearance of the hair stumps has suggested the further name of "black dot" ringworm. (2) A "resistant" variety in which the hair is thinned and bent and twisted, but not broken off short. In neither form

FIG. 20.*—TRICHOPHYTON MEGALOSPORON: ECTOTHRIX.
(After Sabouraud.)

is there scaling of the scalp, as in microsporon. The hairs show strings of spores either in the substance of the hair or outside the hair, and in the hair follicle.

Ringworm of the scalp is a disease of children, and usually disappears about the age of fifteen. Cases of ringworm of the

* From Gaucher's "Diseases of Skin," English Translation.

scalp in adults probably occur, but they are extremely rare.

Kerion is a purulent complication of any kind of scalp ringworm. The patch swells up with deep-seated boggy inflammation, and is studded with numerous discharging openings (honeycomb=κήριον). It is said to be Nature's attempt at a cure, but success is not conspicuous, as the disease spreads indefinitely at the edges and the result is apt to be a permanent bald patch.

Varieties.—According to the regions attacked, several varieties require separate descriptions.

1. *Ringworm of the Body* (*Tinea Circinata, Herpes Circinatus, Tinea Trichophytina Corporis*).—The invasion of the skin surface is marked by a patch of inflammatory redness, with slight scaliness. The lesion extends peripherally, and may heal in the centre, giving rise to a well-defined ring. The surface may become vesicular or pustular and crusted (impetiginous). These patches may persist for an indefinite period (months or years); others may coalesce and form gyrate patches.

When the fungus attacks parts in which contiguous surfaces are in contact (perineum, axillæ, breasts), it grows as a rule with great rapidity, and extends to neighbouring parts, with a strongly marked, slightly raised red edge, often called by its old name, *eczema marginatum*. In hot countries this form appears to be much more difficult to get rid of than in England. It is known abroad by various names, such as "Craw-craw," "Dhobie's itch," etc. It is easily identified by the presence of the fungus. The greater majority of cases of body ringworm are caused by the large-spored fungus.

2. *Ringworm of the Beard* (*Tinea Sycosis, Sycosis Hyphogenicus, Sycosis Parasitica, Tinea Trichophytina Barbæ, Barber's Itch*).—This is a trichophytosis limited to the bearded portions of the face. It begins as one or more small red, somewhat scaly patches, which spread peripherally. Unless the disease be arrested by treatment, it proceeds to the development of the dusky or purplish nodules which are specially characteristic of the condition. Another marked

feature is the easy and painless way in which affected hairs can be epilated. The fungus of beard ringworm shows distinguishing cultural forms " resembling a splash of plaster on a wall, and the surface has a characteristic powdered sugar appearance " (Walker).

3. *Ringworm of the Nails* is an interesting affection, somewhat rare, and often overlooked, as the origin of the onychitis is unsuspected. It may occur in adults. The spores are to be found in scrapings of the nail after soaking for a quarter of an hour or so in liquor potassæ.

FIG. 21.—KERION : PUSTULAR RINGWORM PATCHES.

Etiology.—One of the many interesting points about ringworm is the fact that the scalp forms attack children, and, as a rule, die out at fourteen or fifteen years of age. The cause of the disease is the trichophyton fungus, of which there are apparently a large number of varieties pathogenic to man. The most common source of infection is by transference from an affected schoolfellow by means of an infected cap or by combs and brushes. It may be communicated by domestic animals, notably the cat. It may also be transmitted by the barber, most probably by means of an infected

shaving brush ; this point is of importance, as an action for damages may be brought by a person infected in that way.

Pathology.—The fungus penetrates the layers of the epidermis in ringworm of the skin, and, as already pointed out, invades the follicles, bulbs, and shafts, of the hairs. The inflammatory process of kerion and of *tinea barbæ* starts as a perifolliculitis and ultimately involves the whole skin.

Diagnosis. — The crucial point is the discovery of the fungus. Many cases can be diagnosed at sight, but others

FIG. 22.—RINGWORM OF FACE, SHOWING SHARPLY DEFINED RINGS. (Author's case.)

are not easy. It may be necessary to stain the hair or to make a culture. Sir Malcolm Morris' method is one of the best. The hair is first washed in ether, and then steeped for ten to thirty minutes in a saturated solution of gentian violet in aniline-water. It is then transferred to Gram's solution (iodine 1, iodide of potash 3, water 300) for two minutes. It is next placed on a slide and dried with blotting-paper, and a drop of aniline-oil applied under a cover-glass, when the specimen is ready to be examined under a high power.

To make a permanent preparation, the aniline is washed off with xylol, and the specimen mounted in Canada balsam.

Cultivation is conducted by means of Walker's medium of 1½ to 2 per cent. agar in unfermented beer wort, filtered, put in tubes, and sterilized. The hairs are first soaked for a few minutes in absolute alcohol to eliminate saprophytic organisms.

Cultural methods may be needed in doubtful cases, especially where it is difficult or impossible to decide otherwise that a given case of scalp ringworm is completely cured.

Tinea sycosis should be distinguished from the coccogenic form. The dark red nodules of the ringworm are characteristic, and the ease with which affected hairs can be epilated at any stage of the disease. The ultimate test is the discovery of the fungus.

Treatment.—Crusts and scabs should be removed by washing with an antiseptic soap, and the hair cut close around the patches, or, better still, the whole scalp shaved systematically to locate the disease. Epilation of affected hairs and of hairs around the patch, whether visibly affected or not, is a useful measure. Parasiticides are to be applied night and morning, well rubbed into and around each patch for at least ten minutes. A large number of drugs are available for this purpose ; a good type of ointment is—

℞ Sulphuris sublimatis
Hydrargyri ammoniati } - - āā gr. xxx.
Acidi salicylici
Lanolini
Vaselini } - - - - - āā ℥ss.

Chrysarobin ointment (℥ss. to benzoated lard ℥i.) is useful, but must be used with great caution, as it is apt to inflame the skin of the face and cause a violent conjunctivitis.

Tincture of iodine is recommended strongly by some authorities.

Cyllin (♏xx. to ℥i.), carbolic acid (℥ss. ad ℥i.), corrosive sublimate (gr. iv. ad ℥i.), oleate of mercury (5 to 10 per cent.), are all valuable parasiticides. The writer has had good success with shaving, epilation, and painting with collodion

and iodoform (gr. xl. ad ʒi.) or salicylic acid (gr. xx. ad ʒi.). On taking off the layer of collodion many of the stumps adhere to it.

The X-ray is an invaluable method of treatment, but must be applied by an expert. Even in the best hands there is attendant danger, especially that of permanent baldness. When the disease has resisted ordinary methods, the X rays should certainly be applied; but there is no need to run unnecessary risks thereby if the child is nearing fourteen years of age, when the spontaneous disappearance of the disease may be looked for. Kerion demands epilation and soothing applications.

Sycosis requires daily shaving and epilation, with the use of parasiticides. The X rays are often most beneficial. A 2 per cent. oleate of mercury ointment is useful.

Ringworm of hairy parts cannot be considered cured so long as a single affected hair remains. Before a decided opinion can be given, a certain time must elapse after apparent cure, and repeated examinations be made of suspected hairs or scales.

One great principle of treatment is to avoid over-stimulation and the use of too strong remedies; should irritation occur, treatment should be for a time suspended. Daily washing is, in the author's opinion, desirable.

The hair both of boys and girls should be kept cut close or shaved, the use of brushes given up altogether, caps disinfected daily (by baking in an oven), or not worn at all, and the healthy children separated and their heads washed daily.

A cap or hat may be protected by having a piece of linen fastened inside, taking care that the whole of the inner rim is covered. The linen may be disinfected by boiling or by a hot iron. A piece of paper may be used for a similar purpose.

The question of when an infected child may safely return to school often arises. If the scalp be shaved and painted with antiseptic collodion there can be little, if any, risk of infection.

Prognosis.—Under ordinary treatment, rigorously carried out, ringworm of the scalp cannot as a rule be cured under

one or even two years. Bald patches are apt to follow kerion. Ringworm of the body as a rule can be quickly cured by careful washing and vigorous application of parasiticides.

4. Tinea Imbricata.

Synonyms. — Tokelau ringworm; Burmese ringworm; Herpes desquamans.

Definition.—A contagious tropical disease characterized by scaling concentric and annular patches on the non-hairy parts of the body, due to a vegetable parasite.

Symptoms.—The eruption begins as small papules which itch intensely, and spread peripherally to form circular patches, which may coalesce and form a hard, dry, clay-coloured skin.

Etiology.—The disease occurs in both sexes, and attacks any part of the body, but is very rare on the scalp. It is due to the *Tinea imbricata*, which grows in the epidermis. Some observers regard this as a special form of ringworm fungus peculiar to the tropics.

Treatment.—Vigorous scrubbing with antiseptic soaps and application of parasiticides.

Prognosis.—Favourable.

5. Tinea Versicolor.

Synonyms.—Pityriasis versicolor; Dermamycosis furfuracea; Mycosis microsporonia; Ger., Klerenflechte.

Definition.—A common affection of the skin characterized by small yellowish or fawn-coloured, slightly scaly patches, usually upon the chest and back, due to the presence of a fungus, the *Microsporon furfur*.

Symptoms.—The disease comes on slowly without subjective symptoms, or with itching so slight as to attract little or no attention; only in rare cases is itching marked. It is most common down the sternum and over and between the shoulders; the whole trunk, and even arms and legs, may be involved with yellowish, buff, or fawn-coloured, sharply de-

fined, slightly scaly patches with well-defined edges, running at times into patches of large size. On the face it is extremely rare, but not unknown. Without treatment it may persist for many years.

Etiology. — It is essentially a disease of adult life, and rarely appears before puberty. There appears to be an element of individual predisposition, as it is common in consumptives. It is only slightly, if at all, contagious. It appears to affect specially those who do not wash frequently. There appears to be some warrant for the belief that the disease is spread by unwashed woollen jerseys worn next the skin.

Pathology.—The fungus is found in the superficial layers of the epidermis. It is made up of masses of interlacing mycelia, in the meshes of which are numerous spores, some single, but the greater number massed in groups somewhat suggesting the arrangement of a bunch of grapes. The fungus can be easily seen, under the microscope, in the scales scraped off a patch, and this can be done without the aid of liquor potassæ.

Diagnosis.—The microscope quickly settles any doubt.

Treatment.—Scrub affected surfaces with soft soap impregnated with biniodide of mercury 1 per cent. Pack under gutta-percha tissue with a compress of lint soaked in a lotion—

℞ Acidi sulphurosi - - - - ʒii.
Lig. carb. detergent. - - - ʒi.
Glycerini - - - - - ʒiv.
Aq. rosæ - - - - - ad ʒviii.

M. Ft. lotio.

Or scrub in a cyllin bath (1 ounce to 16 gallons), and rub in thoroughly and apply an ointment containing corrosive sublimate, white precipitate, carbolic acid, or other antiseptic. Single patches may be painted with tincture of iodine. All underclothing should be sterilized. The general health may require attention.

Prognosis.—Favourable.

6. Pinta.

A tropical disease met with in America, and less often in Egypt, Gold Coast, and in the East generally. It is characterized by patches of various colours—chiefly grey, blue, red, and white—which do not fade on pressure, and for the most part affect the parts of the body exposed to the sun. The patches show more or less desquamation, and may itch considerably. They are apt to be externally chronic, and the causation is unknown, but is probably due to some non-contagious infection. It is believed to be caused by the *Penicillium glaucum* and other varieties of fungi.

7. Sporotrichosis.

Definition.—A chronic and infrequent malady due to invasion by the sporotrichium fungus, characterized by the development of suppurating nodules and ulcers. The disease may be localized or general.

This disease was first described by Schenck in America, and since then has been shown to have a wide distribution, and to occur spontaneously in many of the lower animals. In many ways it resembles syphilis and tuberculosis, and this possibly explains why the condition has so long escaped detection, more especially as it yields to large doses of iodide of potassium.

There are two distinct clinical forms. In the first the door is thrown open to infection by some accidental traumatism. Secondary lesions follow the primary infection, but they do not spread beyond their original site, and give rise to what is known as "localized sporotrichosis." In the second or septicæmic form the virus is distributed by the blood-stream, and may affect any part of the body. Internal organs may be involved, but the method of infection is obscure. Some think that the sporotrichium is a saprophyte of the body cavities, and is capable of becoming parasitic under certain conditions.

The localized form may appear as gummata on the face,

limbs, or trunk, which break down and ulcerate after a few weeks : at the same time neighbouring lymphatic glands may be involved. The clinical picture resembles that of syphilis or tuberculosis. There may be abscesses, ulcers, and various forms of dermatitis. Gaucher describes sporotrichosis kerion, like a ringworm patch set in a red areola.

The septicæmic form shows moderate fever and constitutional upset, with one or more crops of eruption. Both forms may be accompanied by inflammation of the muscles, tendon sheaths, bones, and joints.

The lesions are multiple, painless, chronic. As a rule the glands are not involved, except in some of the ulcers which are infected secondarily with the ordinary pus organisms.

Etiology. — The cause is the *Sporotrichium Schencki*, or *Beurmanni*, a culture of which shows the mycelium in the form of long, jointed, branching threads which give off at irregular intervals short branches, each of which bears at the end a cluster of spores. The fungus can be readily grown in culture, the best medium being Sabouraud's glucose-agar. It is pathogenic to a large number of the lower animals, including the monkey, cat, rabbit, and guinea-pig. It has been cultivated on caterpillars and upon the leaves of vegetables.

The infection probably reaches the body in two ways. First it enters through a breach in the skin surface in those who handle vegetables or otherwise come into contact with the fungus, or it may be eaten with uncooked vegetables, or conveyed in some way to the lungs or alimentary canal, or, as already said, it may be a saprophyte natural to the body cavities, which for some reason or other has become virulent and actively infective.

Diagnosis is not difficult when the disease is known. The most certain method is by culture. Syphilis and tuberculosis can as a rule be differentiated by a careful study of the individual case. In the septicæmic form a culture can be obtained from the blood. The agglutination test is a means of further confirmation. The serum of an affected person causes agglutination of the spores of the parasite.

Treatment.—Individual lesions must be treated on general lines by antiseptic applications, scraping, and so on. Internally iodide of potassium in large doses destroys the fungus.

Prognosis.—The disease tends to self-cure after running a chronic course. When recognized, it usually yields readily to treatment.

8. **Blastomycosis.**

This rare condition was first observed in America by Dr. J. C. Gilchrist. It is due to the invasion of the skin surface, probably always through an accidental breach, by some form of saccharomyces. A maculo-papule is formed, which gradually forms a tubercular-looking nodule which ulcerates, scars slowly in the centre, and extends at the edges. It attacks chiefly face and hands, but any other part of the body may be attacked. Its nature may be proved by the discovery of the oval, budding fungus. The lesions are usually multiple, and show many abscess foci, involving both derma and subcutaneous tissue. It is extremely chronic, and closely simulates scrofulodema and tubercular ulcers. It may be cured by iodide of potassium. It is met with most commonly in persons who handle hay or grain.

9. **Actinomycosis.**

This rare disease usually appears on the neck or jaw of persons who are engaged in farming or have to handle hay and straw, but in America is said to attack chiefly persons who are not exposed to agricultural influence. The infection is due to the ray fungus, which may enter either through a mucous membrane or through an abraded skin. The lesions are peculiar. The affected surface is red, and nodulated with discharging ulcers. Small yellow points can readily be detected on the discharge, and, upon examination under the microscope, show the characteristic fungus, in the shape of a round felted mass of filaments with projecting club-shaped processes. The disease yields readily to iodide of potassium,

but if untreated runs an extremely chronic course, and may prove fatal from exhaustion or toxæmia. The ray fungus is anaerobic, and secondary bacteria are usually present in the lesions.

II. Animal Parasites.

10. Scabies.

Synonyms.—Itch ; Fr., Gale ; Ger., Kärtze.

Definition.—Scabies is a contagious malady caused by the burrowings of a female animal parasite, the *Acarus scabiei*, in the epidermis. It is characterized by intense itching, by a polymorphic rash, and by secondary dermatitis due to scratching and bacterial complications.

Symptomatology.—One of the most characteristic symptoms is the cuniculus, or burrow, a delicate, curving, greyish, dotted line, marking the canal cut out in the epidermis by the female acarus, whose eggs are deposited therein. They are well seen in the delicate skin of the webs of the fingers, where they are from $\frac{1}{8}$ to $\frac{1}{4}$ inch long. As a rule they range from $\frac{1}{4}$ inch to 1 inch, or sometimes more, in length. The burrowing of the insect causes intense irritation, which is worse when the patient gets warm in bed at night. Scratching produces many excoriations. The eruption of scabies is multiple. The primary burrrows, papules, and vesicles, are followed by secondary traumatic abrasions, hæmorrhages, pustules, and more or less chronic dermatitis, which may assume various types and persist for many years.

The distribution is peculiar. The hands are a favourite site of attack, especially the interdigital surfaces and the palm, the flexor aspects of the wrist, especially near the styloid process of the ulna ; other common sites are the axillæ, the male genitals (especially the penis), between the breasts and round the nipples in women. The feet are often involved, especially between the toes. The eruption may in severe cases involve any part of the body, and is apt to be more developed in parts exposed to friction or pressure, as round the waist. The face and scalp are rarely attacked, except

in the case of children, who contract the disease while suckling from infected breasts. In cleanly persons the only sites affected may be the anterior folds of the axillæ.

Etiology.—Scabies is always due to contagion, either with infected persons or with infected articles. A not unknown history in the hospital cases is from wearing gloves picked up in a railway train or elsewhere. It attacks any age, but is apt to be specially severe in children and in old persons. It is a disease essentially of the poor and neglected classes, but may occur in all ranks of society, and sometimes lies at the root of skin troubles that have lasted for many years in well-to-do persons or families.

Pathology.—The *A. scabiei* is just visible to the naked eye, being about 0·3 to 0·4 millimetre in length. It may sometimes be seen at the end of a cuniculus (especially between the fingers) as a small white dot, which may be detached by running a needle obliquely along the furrow; if this manœuvre be successful, the acarus will be found clinging to the point of the needle. The female alone burrows in the epidermis, while the male, which is two-thirds the size of the female, remains upon the surface. The body is flat and crab-like, somewhat less broad than long, with four feet armed with suckers in front, and four with bristles behind. The female parasite is said to live about six or eight weeks, during which time she deposits some fifty eggs. The cuniculus she makes is visible to the naked eye as a greyish line of varying length. It runs along the under-surface of the squamous layer of the epidermis, and rarely dips into the substance of the prickle cell layer. It contains ova, fæces, and the acarus itself at the blind end. It exfoliates gradually from the point of entrance, so that the ripest ova (or young acari) are released first.

In neglected cases and feeble subjects the skin may become covered with a crust of inflammatory débris, which is crowded with acari (Norwegian itch).

Diagnosis.—The burrows, the polymorphism and peculiar distribution of the rash, the intense itching, and the history of contagion, in scabies present an unmistakable picture,

Eczema of the hands and elsewhere may be distinguished by the smaller amount of itching, the occurrence of vesicles in crops and patches, and not in lines, and the absence of burrows and history of infection. Occasionally, however, the scabies may be overwhelmed by a secondary acute dermatitis, but careful observation will soon reveal the cause. In extremely chronic, dry eruptions, especially in well-to-do folk, in the author's experience, it is not infrequently overlooked even by medical men of long experience. The disease has often to be diagnosed from the history, the distribution of the rash, and the itching, rather than from the detection of the acarus, or even of the burrows.

Treatment.—The classical and potent remedy of all others is sulphur. The objections to that drug are its unpleasant smell and its tendency to cause in sensitive skins a dermatitis, which it may be difficult afterwards to subdue. The sulphur is best used in the form of ointment, ½ drachm or 1 drachm to the ounce. Its power of penetration can be greatly increased by addition of potassium carbonate (not the bicarbonate), 1 drachm to the ounce. If there be much irritation, add calamine (gr. x.-xx. ad ℥i.). In delicate skins it is advisable to use mild sulphur ointment (gr. xx. ad ℥i.) in combination with equal quantities of balsam of Peru and β-naphthol. An effectual preparation of sulphur is Vleminx's solution (lotio calcii sulphurati), a preparation of calcium pentasulphide which is diluted with an equal quantity of warm water and painted over the skin. Apart from its offensive smell, it is a good remedy.

Both balsam of Peru and β-naphthol will cure scabies, but both are apt to give rise to severe dermatitis and albuminuria, and the other drug to poisoning. Stavesacre ointment is a less powerful but more pleasant remedy, and is often ordered for children.

Whatever application is used, it must be applied thoroughly and with the aid of other measures. The first thing is to soften and open up the burrows by soaking in a warm bath for half an hour, and friction with soap and a nail or other brush; after this the patient is dried and the sulphur ointment rubbed in before a fire for half an hour. The patient

sleeps in woollen clothing. This is repeated for three or four nights, at the end of which time the patient should be cured. At the same time all infected clothing should be disinfected by boiling or baking. This detail requires careful attention. Such things as gloves, jackets, coats, mantles, and so on, may be ironed with a hot flat-iron; especially the linings of cuffs, collars, and other parts of the dress that come in contact with the skin. Lastly, it should be noted that it is of little use to cure one member of a household if others suffering in the same way are left untreated.

In Paris the following is the business-like way of dealing with hospital patients suffering from scabies. The patient is scrubbed with soft soap and a stiff brush in the course of a prolonged hot bath, the water of which is medicated by the addition of 3 ounces of sulphide of potash to 30 gallons of water. On leaving the bath he is rubbed with sulphur ointment and puts on his clothes, which have been disinfected in the meantime. In this way a cure is usually affected offhand.

The addition of chalk to ointments is useful to help in opening up burrows; it may be ordered thus:

℞ Sulphuris sublimat. } - - - āā gr. xx.
Balsami Peruviani }
Cretæ alb. } - - - - āā gr. xl.
Saponis viridis }
Petrolati - - - - - ad ℥i.

Prognosis.—There is no disease of the skin which responds more satisfactorily to treatment. The chief difficulties in private and hospital practice arise from imperfect application of remedies, and neglect of proper disinfection, whereby complete cure is prevented and the door left open for recurrence. If not treated, scabies may last for a lifetime, even in the case of cleanly persons.

11. Pediculosis.

Synonyms.—Phtheiriasis; Lousiness.

Definition.—Pediculosis is an inflammatory condition of the skin due to the presence of an animal parasite, the louse or pediculus.

Varieties.—Man is infested by three species of louse, each of which is practically limited to its own region. They are the head, body, and pubic louse. The body louse is the largest, being about 3 millimetres long by 1 millimetre in breadth; the head louse is 1 millimetre shorter; while the pubic louse is flatter and broader, more like a crab in shape, whence its popular name. The lice are whitish or greyish-white in colour; they multiply at a great rate, and the females of the body lice fasten their eggs with a gluey substance to the clothing, while the head and pubic lice fasten them to the hair shaft. In the head these form the familiar nits. The irritation is due partly to the mechanical movements of the pediculi over the skin, partly to their punctures or bites, and partly to the secondary processes of papule and pustule formation, with erythematous and eczematous developments and scratching. Enlargement of lymphatic glands and abscesses is not an uncommon sequela. Pediculosis should be suspected in all pustular conditions of the scalp.

(*a*) *Pediculosis Capitis.*

The head louse is found more often in children, but it is met with at all ages and in all ranks of society. Where there are only a few of the lice, it may be extremely difficult to detect their presence. Acute eczema of the scalp and enlarged glands or abscesses behind the ears or in the neck are often due to this cause. In children, indeed, an acute weeping inflammation of the scalp is almost always originated in that way. The remote results are sometimes difficult to realize at first sight. General sepsis and high temperature, for instance, may arise from abscess formation. Again, the writer has seen acute torticollis in a girl of fifteen set up by the tenderness of a gland in the sternomastoid region inflamed by septic absorption from the scalp. The author has seen one case of so-called *plica polonica* in which the hair of a female adult (a domestic servant) was felted into a dense mass, beneath which was a seething crowd of pediculi.

Diagnosis is easy. If the pediculi are few and cannot be found, a careful search may reveal some of their ova, or

" nits," or the empty egg case. When one of these is found a long way from the root of the hair shaft, it may be concluded that the parent pediculus produced that particular ovum some time previously. It is essential not to confuse a small scale of dandriff with a " nit." The scale, however, is always loose, while the nit is firmly attached to the hair ; if the hair be pulled taut, the nit can be made to slide up and down the hair shaft. The nit is a small pear-shaped, whitish object, attached firmly to the hair. It takes about six days to hatch out the young pediculus. In examining nits under the microscope, the young louse can often be seen at various stages of development inside the nit case.

Treatment.—There are two indications: first to destroy the pediculi, and secondly their ova. The first can be effected by dressing the scalp with paraffin, but so many accidents have arisen from the inflammable nature of the remedy that it has long ago been abandoned by the author. The head can be washed with strong cyllin or carbolic soap, and thoroughly brushed with methylated spirit containing carbolic acid and tincture of iodine (āā ʒi. ad ʒx. of spirit). Afterwards an ointment of carbolic acid (gr. xx. ad ʒi.) and hydrargyri ammoniati (gr. xxx. ad ʒi.) can be applied. The nits may be destroyed by brushing the hair with warm vinegar. Treatment should be kept up for a week in severe cases, in order to prevent a fresh invasion from the hatching out of ova. Cutting the hair is seldom necessary.

(*b*) *Pediculosis Corporis.*

The body louse flourishes under conditions of overcrowding or of personal uncleanliness. Thus, it is found among tramps, the inmates of night shelters, and in soldiers on active service, where they have no change of clothes for weeks or months together. The parasites live in the clothing, upon which they deposit their ova, and it was long ago pointed out by Sir Jonathan Hutchinson that their appropriate name would be *pediculi vestimentorum* rather than *pediculi corporis*. They cause great irritation of the body surface, and by the insertion of the haustellum into the skin they cause char-

acteristic purple hæmorrhagic spots, usually in the centre of a round reddish macule ; these " bites " may become the starting-point of papules and pustules. Excoriations are caused by scratching, and the most characteristic place for the scratch marks is on the neck and over the shoulder blades. The skin is apt, as the result of long irritation of pediculi, to become bronzed and thickened—" vagabond's skin." Eczema, furunculosis, and abscesses, are other complications.

Diagnosis is readily made from the hæmorrhagic punctate spots, the parallel scratch marks on the shoulders, and pigmentary areas at the neck, waist, and generally where there is much pressure from the clothing. The crucial test is the discovery of the pediculi and nits in the clothing ; they are often to be found by turning down and examining the undergarments covering the back of the neck and shoulders. For his own comfort, the medical man will do well not to declare the nature of the malady unless he can produce his proofs.

Treatment consists in baking or otherwise disinfecting the clothing, and the application of soothing antiseptic applications to the skin ; a mild calamine and carbolic acid ointment is useful.

(*c*) *Pediculosis Pubis.*

The pubic louse infects the adult pubis and perineum. On rare occasions it invades the axillæ, and may be found along the eyelashes, to the roots of which it is firmly attached. Occasionally the cause of a chronic trichiasis may be thus revealed by means of a lens. The parasite clings most firmly to the root of the hair, with its head buried in the follicular opening, and it can be dislodged only with difficulty. The ova are attached to the hair shaft. Attention is usually drawn to the condition by the itching and irritation to which it gives rise. Small bluish pigmentary spots are sometimes seen on the skin in this malady.

Diagnosis should present little difficulty.

Treatment.—The classical and effectual remedy is blue ointment (unguentum hydrargyri). A more cleanly application is a 5 to 10 per cent. β-naphthol ointment, or a lotion

of resorcini ʒi., hydrargyri perchloridi gr. vi., glycerini ʒi., sp. vini rect. ad ℥iv. M. Ft. lotio. In this, as in all forms of pediculosis, the use of carbolic or other antiseptic soap is desirable, Sphagnol soap is an excellent preparation for the purpose ; its active principles are derived from peat.

12. Cysticercus Cellulosæ Cutis.

Cysticerci are sometimes seen in the subcutaneous tissue, forming small, firm, rounded tumours the size of a pea to a walnut. They are found chiefly upon the trunk and extremities, where they may remain unchanged for many years. They contain the scolex of the tapeworm.

III. Protozoal and other Specific Pathogenic Infections.

13. Pellagra.

Synonyms.—Lombardian leprosy ; Ergotism.

Definition.—A chronic disease of protozoan origin, endemic in country districts, characterized by erythematous eruptions, at first recurrent in spring, but later permanent, on parts exposed to the sun, due to specific infection conveyed by an insect (simbulium). It runs a slow progressive course, and usually ends fatally within ten or fifteen years.

This disease has a special significance to dermatologists since Drs. Louis Sambon and Chalmers have traced its origin. It was first noticed in Italy in 1735, and since then has been the subject of continuous study. Until recently it has been attributed to some infection derived from maize, met with chiefly in the maize-eating population of Italy, Spain, Austria, and the South of France. Sambon, however, has referred it to the simbulium, a small midge that inhabits swiftly running water, and has a wide distribution, being found in Scotch and English streams. The infection has been definitely shown to exist amongst insane patients in various parts of England and Scotland.

The disease appears after a period of incubation during which digestive and other troubles occur. Finally, an

erythematous eruption appears in the spring, on the backs of the hands, the face, and other parts exposed to the sun. The attacks are recurrent, and after a time last through the winter; finally, the dermatosis becomes chronic, and the patient dies from exhaustion due to severe disturbances of the cutaneous, digestive, and nervous systems. Insanity is not infrequent. Some few cases treated early may recover; but the malady is usually fatal in the long-run.

The special interest to the dermatologist is the fact that the key is hereby afforded to recurrent spring erythemata associated with prolonged ill-health and with neurotic symptoms extending to insanity. The fact that the skin eruption is one only of multitudinous signs and symptoms involving various bodily systems suggests the necessity of constantly keeping in mind the inseparable relation of the skin to the body as a whole. The careful study of pellagra in Italy has led to the startling result that one of the hitherto unsuspected causes of insanity in the United Kingdom may be an infection distributed by a small midge endemic in its streams.

A study of the views of dermatologists with regard to pellagra is instructive. Many have vigorously maintained the maize theory. Others have classified it consistently as a nerve disorder of obscure toxic origin.

Treatment has so far been of little avail, but now that the cause has been demonstrated we may hope for some specific curative remedy.

There could hardly be a more striking instance of the value of patient investigation of skin diseases than that afforded by the study of pellagra. As a result a widespread and fatal malady will, in all probability, be stamped out within the next generation. Further, a key has been given to the origin of other mysterious and disastrous symptomatic maladies, including some forms of insanity, in countries where the existence of that particular source of specific infection was unsuspected. A stronger case for the economic value to the world of scientific investigation, and of the need of the generous endowment of research. it would be difficult to imagine.

14. Tuberculosis Cutis.

This general term is used to designate those diseases of the skin in which the specific pathogenic factor is the tubercle bacillus, either as a purely local manifestation or a symptom of general systemic infection. The most frequent and important are—

1. Lupus vulgaris.
2. Lupus verrucosus.
3. Miliary tuberculosis cutis and tuberculous gummata.
4. Scrofuloderma.
5. The tuberculides (Darier).

Infection may take place either directly from without, from a deep tubercular focus, through lymphatics or veins, through the blood, or *in utero* (Leloir). The form is determined by the abundance or otherwise of the tubercle bacilli, and by their contamination with other organisms; by individual environment and resistance.

Miliary tuberculosis cutis and gummata usually arise from visceral disease; visceral disease, on the other hand, is sometimes the result of lupus verrucosus and scrofuloderma, but probably never of lupus vulgaris. They are all of slow growth, except the miliary form. Where the tubercle bacillus cannot be found, its presence may be inferred from the results of injection of suspected tissue into guinea-pigs.

Besides the direct tubercular infections, there are various so-called tuberculides and paratuberculoses, probably of toxic origin and not dependent on the tubercle bacillus. These are lichen acne and eczema scrofulosorum, acneitis, tuberculin rash, Hebra's pityriasis rubra, and some cases of lupus erythematosus.

(*a*) *Lupus Vulgaris.*

Synonyms.—Lupus exedens; Fr., Lupus vulgaire, Scrofulide tuberculeuse.

Definition.—A chronic neoplastic infiltration of the skin due to the presence of the tubercle bacillus, producing small

papules and nodular infiltrations which may or may not ulcerate, but always end in scarring.

Symptomatology.—Lupus vulgaris is a common disease. It begins typically on the face of children and young adults as one or more soft small spots, of a dull red or apple-jelly (Hutchinson) colour ; on pressure under a glass the colour is not squeezed out, but leaves a dull yellowish stain, showing its non-inflammatory origin. The process is extremely slow, and it may be years before the nodules unite to form a patch,

FIG. 23.—LUPUS VULGARIS OF OLD STANDING, WITH EXTENSIVE SCARRING AND INVASION OF SCALP.

which may go on to ulceration and crusting, with scarring in the centre and an infiltrated nodular extending area. There is often a moderate amount of scaling, and ulceration gives rise to brownish crusts. The essential features of the patch are its extreme chronicity, softness, peripheral extension, " apple-jelly " nodules, and scarring. The lesions may be multiple (*lupus disseminatus*), appearing all over the body, sometimes on the site of old scars left from measles or chicken-pox. The author reported a case in which lupus appeared in old vaccination scars in front of the ears, placed there

with the view of influencing an affection of the eyes. When ulceration commences, it may extend deeply into the cartilages and produce frightful deformity, although, fortunately, it spares the bones. In the non-ulcerative forms the skin becomes dense, white, cicatricial, and contracted.

Lupus Serpiginosus occurs chiefly on the neck and limbs. The name is applied to lesions that spread by their edge, and coalesce with neighbouring lesions into gyrate form ; rarely this assumes an acutely spreading character.

In *Lupus Hypertrophicus* there is much infiltration. There is a non-nodular variety, slightly raised and sometimes symmetrical, called by some *Lupus vulgaris erythematodes.*

Sometimes lupus becomes papillomatous.

Epithelioma may develop on old lupus sites.

Lupus may occur primarily in mucous membranes, especially of nose, mouth, pharynx, and larynx. It more commonly results by extension from a neighbouring skin lesion.

Etiology.—Lupus vulgaris is twice or three times more common in females than in males. It is a disease essentially of youth, and appears chiefly between five or six years of age to puberty. At times, however, it may develop at an advanced age. There is often an associated family history of phthisis.

Pathology.—The essential factor is the tubercle formed in the deeper corium. The tubercle consists of " granulation tissue," a small round-celled infiltration of a network of connective tissue, which also contains epithelioid and multinucleated giant cells. After a time the bloodvessels are blocked and coagulation necrosis occurs. The degenerated products may be absorbed or ulcerate through the epidermis.

Diagnosis.—Lupus is distinguished from epithelioma by the later age of the patient, the pain, and the hard everted edges and progressive ulceration of the latter. The tubercular syphilide is recognized by the history, the age, and the concomitant signs of syphilis.

Lupus Erythematosus is a disease of later life, has no nodules, and does not ulcerate.

In doubtful cases 2 milligrammes of Koch's old tuberculin

may be injected, increasing to 5 or 10 milligrammes. A sharp constitutional reaction eight to twenty hours after injection, or a positive local reaction on a red base, indicates tuberculosis.

Another test is Calmette's ophthalmo-tuberculin reaction. It consists in placing a single drop of a 1 per cent. watery solution of dried tuberculin in the eye of the patient. In healthy persons no result follows, but should the patient be tuberculous a muco-purulent conjunctivitis follows (maximum averages within six hours), and should be well in two or three days. Calmette claims that his method, if positive in result, indicates an active or incompletely cured focus of tubercle bacllius. He admits its failure in some cases, especially in extensive and virulent or old-standing lesions.

The von Pirquet test is a kind of local vaccination. The arm is cleansed, and two scarifications made as for vaccination, taking care not to draw blood. On one spot is placed a drop of a 35 per cent. Koch's old tuberculin, and on the other a blank solution—say 1 part 5 per cent. carbolic acid in glycerine and 2 parts sterile 0·85 per cent. salt solution. A positive reaction shows itself in the tuberculin-treated spot in twenty to twenty-four hours by a circumscribed red lesion, while the other spot remains unaltered. A positive result indicates tuberculosis.

Treatment.—Constitutional treatment with iron, quinine, cod-liver-oil, fresh air, good food and hygiene, is important. *Locally*, surgical measures are most satisfactory. Arsenical pastes are not much used nowadays, but salicylic acid paste is still sometimes advocated. The best method is to excise when feasible. Scraping with a sharp spoon is good treatment, as the spoon spares the sound tissues. After scraping, the raw surface may be mopped with pure carbolic acid. This plan, however, is apt to be followed by keloid scar.

Another plan is multiple scarification, but recurrence is apt to take place in this, as, indeed, after all other methods. The Finsen light is extremely tedious, and its result not very satisfactory. Properly applied, the X rays form a valuable means of treatment. One of the best destructive agents is carbon dioxide snow.

Electrolysis is sometimes useful.

Radium undoubtedly cures some cases of lupus, but possesses no special advantages.*

Prognosis.—Favourable to life ; but, unless the disease can be arrested at an early stage, it is one of the most chronic and rebellious of skin diseases, and when cured is apt to leave disfiguring scars.

(*b*) *Lupus Verrucosus.*

Synonyms.—Verruca necrogenica ; Anatomical tubercle ; Post-mortem wart.

A chronic tuberculous affection of the skin characterized by warty growths, and usually occurring on the hands as the result of direct infection of handling dead bodies.

Symptomatology.—It usually begins on the site of an abrasion on the finger, as a vesico-pustule on a red area. The growth extends, and becomes warty in the centre, with fissures and exudation of pus: sometimes large areas are involved. It is an extremely chronic affection, and may lead to vesical lesions and terminate fatally, or may lead to other serious secondary conditions.

Treatment.—Excision, scraping, caustics (solid stick of carbonic acid snow applied firmly to warts).

Prognosis should be guarded.

(*c*) *Miliary Tuberculosis and Tuberculous Gummata.*

This is rare, and consists usually of secondary infection around the mucous orifices from primary visceral tuberculosis. The lesions consist of small miliary tubercles, which form shallow and usually painful ulcers.

Tuberculous Gummata occur in the subcutaneous tissue of cachectic patients. They break down into indolent ulcers.

In both forms tubercle bacilli are abundant and easily detected. Both occur as a rule late in the course of fatal internal tuberculosis.

* Of the few drugs likely to be of any specific use, allyl sulphide is well worth a trial. It can be best applied in the form of an ointment locally, or internally in the form of capsules.

(*d*) *Scrofuloderma.*

This name is applied to the sluggish, inflammatory, suppurating lesion of the skin overlying suppurating tuberculous glands or other subcutaneous tubercular mischief. It is most common in the neck and axilla, and is due to chronic secondary pustular rather than to direct tubercular infection, although in rare cases the tubercle bacilli may be found.

Treatment is surgical, together with that of the constitutional malady.

(*e*) *The Tuberculides.*

Recently a great deal of interest has been taken in a group of eruptions connected with tuberculosis. Under this title Darier described various affections, such as acne cachecticorum vel scrofulosorum, disseminated or agminated folliculitis, acnitis, folliclis, hydrosadenitis destruens vel suppurativa, granuloma innominatum, and disseminated lupus erythematosus. To these Colcett Fox, in his report on the tuberculides to the Paris International Congress in 1900,* added acne varioliformis, necrotizing chilblains, lichen scrofulosorum, and erythema induratum scrofulosorum (Bazin). Fox described the essential lesions as small, extremely indolent granulomata, tending to undergo central softening and necrosis, and thus to leave scars.

Acnitis Type.—Occurs mainly on face, chiefly as brownish-red, firm, chronic papules, with perhaps a few vesicles or pustules, leaving small pigmented scars. They are apt to be confused with acne and acne varioliformis.

Folliclis Type.—Occurs chiefly on hands, forearm, legs and feet. There are crops of firm, painless papules, developing into vesicles or pustules, lasting six or eight weeks, but recurring, perhaps, for many years. They are commonly associated with tuberculosis elsewhere in the body.

* *British Journal of Dermatology*, 1900, vol. xii., p. 383.

15. Syphilis Cutanea.

Synonyms.—Syphiloderma; Syphilide; Pox; Lues.

Definition.—Cutaneous manifestations of syphilis are present in all stages of this extremely chronic, infective, and general disease, and are directly or indirectly due to the action of a special parasite, the *Spirochæte pallida*.

Note.—The natural history, pathology, and treatment of syphilis have been rewritten within the past few years, and the firm ground of scientific fact substituted in place of clinical speculation. The discovery of the pathogenic organism by Schaudinn in 1905, followed by the Wassermann test of active infection in 1907, and the treatment by the Ehrlich-Hata arsenical compound "606" in 1909, have simply revolutionized our attitude with regard to almost every phase of this protean malady.

It seems undesirable to attempt to consider the cutaneous effects of syphilis apart from the disease itself.

Symptoms.—The primary sore or hard chancre is developed usually on the penis, after an incubation of about three weeks, during which there are no symptoms. It may be communicated in other ways, as by kissing a person whose lips are infected by a secondary rash; it has often been conveyed by means of an infected pipe, mug, or table utensil, or by direct contact of the finger in midwifery cases, occasionally by dental instruments or vaccination, but is most often conveyed by impure sexual intercourse. The point of infection in most cases is probably an abrasion of the skin; on its site develops a single painless ulcer, with a hard cartilaginous base and scanty secretion (the hard or primary sore). At the same time the nearest lymphatic glands (the groin in chancre of the penis) enlarge and become hard and bullet-like, but not tender and matted together as in ordinary inflammation; this adenitis becomes general throughout the body, and is a useful clinical sign of the persistence of the disease. There is moderate fever, the temperature being raised continuously by 1° or 2° F. The primary sore, the adenitis, and the fever, constitute the period of primary

infection, which lasts about eight weeks from the date of inoculation.

The *secondary* or generalizing stage follows, and is usually ushered in by a brownish-pink, fleeting rash on the chest, abdomen, flanks, etc. This is followed by a papular rash, and this by scaly and other eruptions. The mucous membranes are involved, and whitish patches occur on tongue, cheeks, fauces, and various cracks, fissures, shallow ulcers, and condylomata in various parts of the body. The hair is shed, and crusts may form on the scalp ; the patient suffers from dull and continuous headaches, usually frontal and worse at night, and sore throat ; inflammations are apt to occur in the eye, ear, testes, and periosteum, or in any internal organ. The secondary stage is infective, and contagion is often communicated from secondary lesions of mucous membranes. The usual slight fugitive fever may be long-continued and run high, with rise at night, and there may be albuminuria. This stage lasts about two years, and is characterized by the general symmetry and multiformity of its manifestations, which gradually become less marked and regular, and the tertiary stage follows. Rarely there are no secondary symptoms, but tertiary lesions may nevertheless develop.

In the tertiary stage the disease is no longer contagious—at any rate, to any great extent, although the inoculation of gummata into apes has transmitted syphilis. The chief characters of this period are asymmetry and the development of gummata, non-vascular new growths, and granulomata made up of many cells of low vitality, specially apt to break down and ulcerate, leaving more or less extensive and pigmented scars. They attack connective tissue, skin, bone, muscle, and internal organs, especially liver and brain. This stage is marked by advanced arterio-sclerotic changes, and aneurism occurs, chiefly as the result of the middle-coat inflammations which mark the second stage of the disease. Vascular degenerations and gummy growths are a fertile source of many brain and nervous diseases, as locomotor ataxy and various forms of paralysis. Gummata often simulate malignant tumours.

Now and then the tertiary stage defies all treatment, and may persist through life or prove fatal; it is known as "malignant syphilis."

Colles' law states the important observation that a child affected with congenital syphilis cannot infect its mother.

Hereditary syphilis is inherited from infected parents. It will be described in more detail below.

The characteristic features of syphilitic eruptions are :—

1. *Colour*, which has been aptly described as that of copper red or of raw ham (Hutchinson). *Pigmentation* is a marked characteristic of later eruptions, with or without characteristic scarring.

2. *Polymorphism* is a frequent feature, macules, papules, scarring, and other lesions, being present at the same time.

3. *Shape of lesions*, which is often circular, festooned, or serpiginous.

4. *Absence of itching* or other subjective cutaneous symptoms. Where neuralgias and other nerve pains are present, they are as a rule worse at night or altogether nocturnal.

5. *Amenability to mercurial or other antisyphilitic treatment*, in which are included mainly iodine and its compounds and the new arsenical compound known as "606" (Ehrlich-Hata).

6. *Hardness* is a feature in some of the papular and other lesions.

7. *Mimicry* is marked; almost any cutaneous rash may be simulated by syphilis, but the latter can usually be distinguished by the discovery of concomitant signs and symptoms.

The *erythematous or macular rash* is the first and most common skin eruption, appearing within six to eight weeks of the primary sore. It consists of round, light brownish-pink macules, which at first fade under pressure. It may occur anywhere on the body, but is most common on the chest, abdomen, front of the forearms, and shoulders.

The *papular rash* is usually divided into the small (miliary papular syphilide) and the large varieties. The small papular rash appears early in the secondary stage in dense crops the size of millet-seeds, covering a considerable area of the body,

more commonly, perhaps, the trunk and legs; on the face the author has known this rash diagnosed as acne. Like all the secondary rashes, it tends to involve the greater part of the body surface.

The *large papular syphiloderm* occurs usually within the first year. The lesions are dusky red papules, sometimes scale-tipped and discrete. Their favourite site is on the forehead, where they form the "corona veneris," and the flexor

FIG 24.—SYPHILITIC SCARS, SHOWING LOSS OF SUBSTANCE, PIGMENTATION, PUCKERING, AND AREAS OF THIN WHITE "PAPERY" SCAR TISSUE.

surfaces of the extremities. They usually fade away after a few weeks' duration, but are prone to recur. At times these papules develop into condylomatous, scaly, or pustular forms.

The *syphilitic condyloma*, or moist papule (condyloma latum), develops in regions where skin surfaces are in apposition, as about the anus and scrotum.

The shedding of the surface epithelium leaves a moist surface, and the papule assumes a flat, button shape, yielding a whitish discharge which is highly contagious and has an

offensive smell. These condylomata may coalesce into large flat patches or form a mass of warty growth, at times not a little rebellious to treatment.

The *squamous or papulo-squamous syphilide* is a papule in which scaling is prominent. It occurs as a late secondary eruption on the palms and soles (formerly called " palmar " and " plantar " psoriasis), and is often difficult to cure. The scales, when other parts of the skin are affected, are greyish, as contrasted from the silvery white scales of psoriasis. They do not affect extensor surfaces chiefly, and are attached to a hard and non-infiltrated base.

The *pustular syphilide* is probably for the most part due to secondary pyogenic infection of one of the preceding forms. As an early manifestation, the pustules may be small or large, and leave small non-permanent scars. Small flat pustular forms may occur on face, scalp, and genitals.

Two kinds of large pustular syphiloderms are described—a mild superficial one occurring during the first year ; and a deep crusted one in unhealthy patients in the late secondary or early tertiary stages, the crusts sometimes assuming a conical shape (rupia) upon a deeply-seated ulcer.

Bullæ are rare manifestations.

The *nodular syphilide* is a firm, dark red nodule the size of a pea to a hazelnut, occurring as a late manifestation, not as a rule before the second year. They persist for some time, and may then disappear, leaving depressed pigmented scars ; or rarely they may spread centrifugally with a firm, nodular raised border and a centre healing with a smooth, thin, glazed or " papery " scar. They are commonest on the back and legs, the lower part of the neck, and the face.

The *gumma*, the chief characteristic of late syphilis, is a circumscribed, firm, painless subcutaneous nodule, which may disappear spontaneously, but more often it grows steadily, and sooner or later breaks down and discharges a peculiar thick and viscid fluid. This is followed by ulceration of a low, destructive type.

Diagnosis.—By bearing in mind the characteristics of syphilis, such as its multiformity, it should be possible to dis-

tinguish it. The use of the thermometer will mark off the acute exanthems from the erythematous syphilide.

The small pustular syphilide on the face and upper part of trunk is sometimes mistaken for acne. It leaves a scar, and may be confused with varioloid acne. Diagnosis depends on a careful consideration of the course and concomitant signs and symptoms of syphilis, while the acne lesions are much more localized and inflammatory.

Some tertiary gummata may be mistaken for mycosis fungoides, but there is a history of previous rashes, and the onset of mycosis is different.

Parasitic sycosis is sometimes mistaken for a syphilide.

The great modern advance in diagnosis is the discovery of the Wassermann blood-test for syphilis. Want of space forbids a detailed discussion of this most interesting phenomenon.* Broadly speaking, a positive result indicates the presence of active syphilis in, say, from 80 to 90 per cent. of cases. It is important to note, however, that syphilis may exist even when the finding is negative. Further, a positive result may in rare instances be caused by diseases other than syphilis. Nevertheless, the fact remains that in Wassermann's test we have corroborating evidence of great value in doubtful cases. The carrying out of this complicated test will be within the power of few practitioners. In most cases it will be convenient to send a specimen of the blood to a laboratory.

It has enabled us to demonstrate the syphilitic nature of many diseases, such as aneurism and general paralysis, in which the diagnosis was formerly only a matter of probability. It helps us, on the other hand, to eliminate syphilis in doubtful eruptions.† "Its presence in the blood of the mothers of patients with hereditary syphilis has shown us that Colles's law is to be explained by the fact, previously suspected but not proved, that the mothers themselves have syphilis, but in a mild form."

Under the name of "metin" an emulsion of dead *Spirochæte*

* A description of the Wassermann test by Dr. Harry Campbell is given in the Appendix, p. 286.

† Emery, *Medical Press and Circular*, December 21, 1910, p. 651.

pallidæ has been introduced as an agent for obtaining a cutaneous reaction in syphilitic patients. Dr. Rytina* concludes that in primary and secondary syphilis the metin test is less constant than the Wassermann reaction, but in tertiary, latent, and congenital syphilis, and parasyphilis, it is much more positive, and therefore of greater value than the complement-fixation test.

The greatest and most valuable advance ever made in the diagnosis of syphilis is undoubtedly the demonstration of the specific organism. The discovery of the *Spirochæte pallida* in any given case affords indisputable proof that the disease is syphilis.

Etiology.—Syphilis may be hereditary or acquired. It is commonly acquired by illicit sexual intercourse, but may be spread in many ways by contact with the infective organism, and be transferred later to many innocent persons. It is due to a specific pathogenic organism, almost certainly a protozoon, the *S. pallida*. It runs a long chronic course, and in various ways resembles an exanthem.

The spirochæte is a corkscrew-shaped micro-organism. Ehrenbach classified this class into two genera—spirochætæ (flexible organisms and spirilla) or rigid spirals. Later he distinguished two species—spirochætæ, having an undulating membrane, but no flagella (including the *S. refringens*, common in syphilitic lesions and in simple ulcers); and the treponemata without undulating membrane, but with terminal flagella. This group includes, besides some non-pathogenic members, the organisms of syphilis and the closely-allied *S. pertenuis* of yaws (Emery).

The *S. pallida* has been found in almost every syphilitic lesion, although it is sparsely distributed in gummata and some other tertiary lesions. It can be readily found in a primary sore by scraping gently and placing some of the exudation on a cover-glass. It can be best seen by examining while moist with the dark-ground illumination, obtained by placing a drop of Indian ink beneath the cover-glass. By

* "The Metin Skin Test in the Diagnosis of Syphilis," A. J. Rytina, M.D., *New York Medical Record*, March 1, 1913, p. 384.

ordinary microscopical methods it is difficult to demonstrate the organism.

The organism has a spiral form, the turns of the spiral being about 1 μ, and the total length 8 to 12 μ, or rather more than the diameter of a red blood-corpuscle. In the living state it is actively motile, and is usually fairly stiff and rigid.

Cultivation outside the body has not been certainly successful, although it increases in numbers under some cultural conditions. It multiplies greatly in a rabbit's eyeball.

The organism outside the body is of low vitality. The fact that it is a protozoon is of some significance, for it has been pointed out that it is in the case of maladies due to protozoon infection that we find our few specific drugs—for instance, quinine in malaria, various arsenical preparations in sleeping-sickness, mercury and "606" in syphilis, to which list Emery adds the possible or probable addition of the salicylates in rheumatism.

It seems probable that blood has a considerable bactericidal action on the spirochætes. Notwithstanding, they have the power of lying latent, say in a bone or internal organ, for an indefinite period, until some unknown change of bodily condition calls them into activity. The Wassermann test should enable us to distinguish these latent cases. It should also enable us to know whether we can overtake the infective process which presumably ends in some of the parasyphilitic affections, especially of the nervous system. It would also decide in some cases the nature of an intracranial tumour.

The *S. pallida* has been inoculated into certain apes, in whom it causes syphilis, which can be communicated in turn to other apes. Rabbits may also be inoculated.

In reporting a brilliant research upon the life-cycle of the organism of syphilis, Mr. J. E. R. McDonagh, F.R.C.S.,* announced the discovery that the *Spirochæte pallida* simply represents the end phase of the cycle of male organism. He assumed first that the pathogenic organism was a protozoon, arguing from its long incubation period, and from the fact that one or two injections of salvarsan did not cure every

* Royal Soc. Med. Proceedings, Nov. 1912, p. 8.

case, the reason being that the drug killed off the spirilla or male gamete, but not the small round female gamete. From McDonagh's description the development of each is indistinguishable up to a point, after which both are extruded, the male developing into a long filamentous body, which breaks up into the perfect spirilla, or *Spirochæte pallida*. This body has never been seen to divide, as would almost certainly occur were it the sole causative form of syphilis. The female cycle ends in the production of small round motile bodies, or female gametes. McDonagh has not seen the union of the two. He thinks the parasite belongs to the order Sporozoa, and the subclass Telosporida, because the spores are found at the end of the cycle. The order is probably the Coccididea, and the species *Leucocytozoon*, hence the name of the syphilitic parasite should be *Leucocytozoon syphilis*.

He arrives at the highly important conclusion that infection is probably conveyed by the sporozoite, and not by the *Spirochæte pallida*.

McDonagh says the best way of examining specimens *in vivo* is to take a fat-free slide and make a film on it of borax-methylene blue. Having allowed the stain to dry, a drop or two of syphilitic secretion is put on a cover-slip, which is pressed down on the slide. By this means all the cells are metachromatically stained, all the organisms are stained, and even the delicate *Spirochæte pallida* can be seen moving about with ease. For fixed films, Giemsa's stain is the best, and for sections Pappenheim's stain (pyronin and methyl green).

McDonagh's bodies are most abundantly found in a giant-cell formation in the centre of a regional lymphatic gland, or in the centre of a group of plasma cells. They are frequently seen in the walls of vessels and in the vessels themselves free among the red corpuscles, and in the lymphatic spaces.

About the same time Mr. E. H. Ross, John Howard McFadden student of the Lister Institute, made somewhat similar observations. In the *British Medical Journal* for December 14, 1912, he published an account of an intracellular parasite developing into spirochætes. He described both extracellular and intracellular bodies in connection with

syphilis. He also described and figured peculiar bodies, in which are apparently the female gametes of McDonagh. Ross, however, does not push his conclusions so far as McDonagh.

By a curious coincidence, apparently similar small granular bodies were described by Dr. Hideyo Noguchi, of the John Hopkins Hospital, New York. In an article on "The Identification of *Spirochæte Pallida* in Culture,"* he writes: "In studying the effect of cultural conditions on the life of *Spirochæte pallida*, I have observed the appearance of many minute, highly-refractory granules in the cultures growing under unfavourable conditions. In such cultures the spirochætes are few in numbers. These minute bodies can be distinguished from the serum particles by staining methods. They do not stain with Giemsa when the smear is fixed in methyl alcohol, but take a reddish-violet stain when the film is fixed in absolute alcohol in a wet state. Serum particles remain unstained by either procedure. The ordinary anilin dyes do not stain the granular forms of the *S. pallida*."

It seems clear that Noguchi is here describing the same bodies which McDonagh has identified as the female gamete of the specific protozoon causing syphilis. In this case, therefore, the discovery appears to have been made by both observers simultaneously.

Pathology.—The process seems to be one of irritative hypertrophy with abundant cell formation, chiefly around bloodvessels which are dilated and show endothelial proliferation. Later there is extensive cell degeneration. The process is due to the presence of the spirochæte in the tissues. In the bloodvessels it specially affects the middle coat, and later fatty and calcareous changes lead to arterial disease, especially arterio-sclerosis and aneurism.

The gumma is a granuloma with little vascular supply; it resembles some of the subcutaneous nodular lesions of tuberculosis, which are, indeed, spoken of as "tuberculous gummata" by some observers.

* *The Journal*, New York, October 8, 1912, p. 1236.

Treatment.—The sovereign remedy for syphilis has hitherto been mercury in one form or another, with the addition of iodide of potassium in the later stages. It can be administered by mouth, by inunction, and by injection into the tissues.

Mercury may be applied in the form of an ointment (hydrarg. ammoniata, gr. x. ad ℥i. ; oleate of mercury, 2 to 5 per cent., etc.), or by way of fumigation. A rapid and in some cases most effectual way is by the hypodermic injection of a soluble salt (as the perchloride, $\frac{1}{10}$ grain) or an insoluble salt (*e.g.* calomel, injected deeply into the buttock). In some cases where a rapid action is desirable, a solution of a soluble salt—*e.g.*, succinamide or biniodide—may be injected intravenously. The advantages are rapidity of action, absence of pain, and salivation, certainty of absorption. Grey oil has been used largely by English army surgeons ; it is administered once weekly, injected deeply into the muscles of the flank, and insures a continuous and regular dosage. Ten minims of the grey oil contain 1 grain of mercury. Such injections are slow in action and apt to be painful.* Inunction is an excellent plan, especially with babies; some 10 grains of blue ointment is rubbed into the axilla and groin night and morning, or it is rubbed into the skin beneath the " binder." In adults a similar action can be secured by the " mercolint," a mercurial bib worn over the chest. Internally it is best to push the drug until the patient is brought well under its influence. Blue pill in doses of 2 grains can be given every four hours for several days, or until the bowels become loose and there is some tenderness of gums and salivation. (It is well to remember that mercury sometimes causes erythematous and other rashes.) Mercury and chalk may be given in 1-grain doses every two hours in the same way. Where there is anæmia or an irritable digestion, the author usually gives a pill composed of hydrarg. cum creta, gr. i.; pulv. ipecac. co., gr. $\frac{1}{2}$; pulv. ferri redacti, gr. i.; extracti glycerrhizæ, q.s. ut fiat. pil. Sig.: One every two hours. When the

* Lambkin has lately introduced a preparation of grey oil with creosote, which is said to be painless.

desired physiological effect has been produced, it is well to stop the pills for a couple of days, then start with one at night, increasing to one night and morning for weeks or months at a time. Gallate of mercury (gr. $\frac{1}{2}$ to 1) is useful in pill form, as it acts rapidly and does not purge. A valuable pill is that of the red iodide of mercury (gr. $\frac{1}{16}$) or the green iodide (gr. $\frac{1}{8}$). One of the best liquid preparations is the liquor hydrargyri perchloridi in ʒss. or ʒi. doses. In debilitated subjects Donovan's solution—liquor hydrargyri et ferri arsenicalis—in doses of ♏x. thrice daily is often most useful. On commencing a course of mercury, the teeth should be carefully attended to. The course of mercury should be kept up, in mild doses, if the symptoms are controlled, for at least one year, and in most cases for two years.

Iodide of potassium is of specific value in such tertiary symptoms as periostitis, headache, and gummata. It should be given in doses of 5 to 10 grains thrice daily, and may be combined with aromatic spirits of ammonia if it cause depression. The doses may have to be pushed to a large extent—as much as 1 drachm or even 2 drachms thrice daily in some cases of visceral and other tertiary lesions. It should not be forgotten that the iodides are apt to cause large papular and nodular lesions, which are at times treated vigorously by large doses of mercury and iodide of potassium, under the mistaken impression that they are of syphilitic origin.

All methods of medication for syphilis, however, are now supplemented by the remedy recently introduced by Ehrlich under the somewhat slangy name of "606." Its scientific name is dioxydiamidoarsenobenzol, an obviously inconvenient name for which it is proposed in England to substitute the term "salvarsan."

The discovery of salvarsan as a specific microbicide in syphilis was due to a systematic series of observations upon the effect of various drugs upon syphilized lower animals. In that way Ehrlich and Hata were able to arrive at salvarsan. Fairly good results were obtained with such arsenical preparations as atoxyl, arsacetin, and arsenophenylglycin. More striking results, however, have been secured with salvarsan,

and there can be no doubt as to its bactericidal power in syphilis. At first it was feared that it might lead to dangerous degenerative sequelæ, such as the blindness occasionally caused by another arsenical preparation (atoxyl). These fears have proved groundless, and salvarsan is practically safe if administered in the proper cases. It should not be used in advanced degeneration of the nervous system, in advanced heart and valvular lesions, or in serious non-syphilitic organic disease. It may be given subcutaneously or intramuscularly, but both methods are painful, and have been generally abandoned for that of intravenous injection. By the intravenous route, 0·3 to 0·4 gramme of the drug is rubbed up with 0·3 gramme methyl alcohol or glycol, or it is dissolved in hot water. This is next added to a mixture of 240 c.c. of normal saline and 10 to 12 c.c. of $\frac{N}{5}$ NaO.H, warmed to 37° C., shaking vigorously all the time until the fluid is clear. This is then injected warm into the median basilic or other vein. Needless to say, rigorous asepsis must be observed before, during, and after this procedure. The drug is excreted in about four days, and some then inject 0·5 gramme intramuscularly deep into the buttock. The powder is shaken out into a mortar and rubbed up with a little methyl alcohol, or 15 per cent. caustic soda is added to dissolve it. When the alcohol is used, normal soda is added to convert the drug into its sodium salt. The alkaline solution is now neutralized with glacial acetic acid, using phenolphthalein as indicator. This throws down a fine yellow precipitate, which is taken up in a few cubic centimetres of water, centrifugalized, normal saline added, and injected as suspension (C. A. Morton, F.R.C.S., *Medical Press and Circular*, February 22, 1911).

The writer has used a semisolid preparation of "606," sold under the name of "Joha." It is ready for use, and with a special syringe can be injected deeply into the flank. It causes no subsequent pain, and reaction is absent or so slight as to cause no practical inconvenience. There is no need for the patient to be kept under observation in bed for a day or

two, as is the case with intravenous injection. The author has used Joha in a number of cases, and has not found any inconvenience from allowing a patient to go home from the consulting-room or out-patient department after an injection. The effects are striking; primary disease is usually arrested, and no secondary phenomena follow. Rashes, sore throat, and headache, disappear; early cases of tabes seem to have recovered, with return of eye and patellar reflexes; while chronic and malignant cases have undergone rapid amelioration and recovery. A syphilitic infant has been cured through the milk of a mother treated by salvarsan. Recurrence takes place to a certain extent, but in this new drug we have an antisyphilitic remedy of a potency surpassing anything yet attained. As time goes on, we shall probably discover simpler methods of preparing and of administering the drug. The discovery of this new drug may revolutionize the attitude of scientific medicine towards syphilis.

To sum up our present position, we have in salvarsan a powerful aid to the cure of syphilis, but it is certainly not able to effect a complete cure in all cases. Mercury is always necessary. The best plan is to give an injection of "606," and if symptoms disappear, apply the Wassermann test. Should this be positive, give six intramuscular injections of grey oil at a week's interval. Leave off for six weeks, and alternate in that way for two years. Should the Wassermann test be negative, repeat it in six months' time, and be guided by results. Mercury injected into the tissues is more trustworthy as a remedy than when given by the mouth.

The discovery of the Wassermann test and of salvarsan cannot fail to call renewed attention to the social and economic issues of the disease. By means of them we should be able to decide whether a spouse be free of syphilis, and, as parent, so far capable of begetting healthy offspring. The invalidity of our army and navy could be greatly reduced by compulsory treatment, the results of which are under accurate scientific control. The sickness disability of our working and general lay population might in the same way be

enormously reduced. The control of prostitution might be attempted on an entirely fresh basis, with scientific methods of detecting the existence of syphilis, and with the added conviction that compulsory control would, in the vast majority of instances, mean speedy compulsory cure.

Prognosis.—Under ordinary treatment by mercury and the iodides, a prolonged course of two years is insisted upon by most of the leading authorities. Marriage as a rule is not permitted until two years after the disappearance of all symptoms. All this, however, must be more or less rewritten in the light of modern diagnosis and treatment. Some cases of syphilis run a malignant course, and seem to be unaffected by ordinary antisyphilitic remedies, but even these are apparently amenable to the Ehrlich-Hata remedy.

Syphilis is a curable disease if thoroughly treated. The chances of recovery are more hopeful if the patient has a naturally robust constitution and lives under wholesome conditions as to food, air, exercise, and the rest of his environment. Above all, temperance is required in such matters as alcohol, tobacco, and sexual indulgence. Hereditary syphilis is a serious malady, but with careful administration of mercury and a good environment much may be done, and the sufferers may grow up strong and useful members of the community.

NOTE.—A later form of the Ehrlich-Hata compound is neosalvarsan, which appears to be free from some of the disadvantages attached to salvarsan.

CLASS XII

CERTAIN GENERAL DISEASES AFFECTING THE SKIN

1. Myxœdema.

"In myxœdema the skin is thickened and harsh; the hair becomes dry, coarse, and brittle, and falls out rapidly. On the head this often affects the edges of the hairy scalp most, forming the 'frontal band alopecia' of D. Walsh, or the 'cassowary neck.'"* The hair of the eyebrows becomes coarse, and the outer third thin or bald. The nails are often brittle, and ridged either transversely or longitudinally. The "frontal band alopecia," in my opinion, points to an idiosyncrasy. I have notes of some hundreds of cases in which children with congenital high forehead have suffered from tachycardia, epistaxis, headaches, fine tremors, and nervousness after shock. Persons with this band are likely to develop exophthalmic goitre in later life, and often myxœdema in varying degree. I found the condition of tachycardia and nervousness extremely common amongst the children in a large out-patient department which drew its patients from a poor district. Later I had the opportunity of examining a large number (several hundreds) of Poor Law children in the Cuckoo Schools at Hanwell, through the kindness of Dr. Litteljohn, then Medical Superintendent. I found a large percentage of the children with congenital high forehead, but only a comparatively few of them had tremors and quick pulse. I formed the conclusion that the abundant food and good environment of the schools had minimized the temperamental tendency. This view was strengthened by the further observation that, although the congenital high forehead was common in the children of the well-to-do, it was rarely accompanied

* "System of Medicine," Osler and McCrae, 1909, p. 458.

by tremors and tachycardia. Another commonly associated lesion after shock in frontal band patients is alopecia areata.

It is usual for dermatologists to refer readers to works on general medicine for information as to myxœdema and its associated skin conditions. On the other hand, it may be argued that in view of the extensive mucoid and connective-tissue degeneration that takes place in the subcutaneous tissues, the thickening and scaly desquamation of the epidermis, the pigmentation, and the generally altered functions and nutrition of the skin and its appendages, the subject is worthy of closer attention by those interested in dermatology. The fact that deficiency in the normal supply of thyroid secretion can bring about profound alterations in the skin and its appendages is one of much significance. It has seemed to me that the cutaneous symptoms might be more or less accounted for by the mechanical interference with the surface capillaries by the solid cutaneous œdema. The coldness that characterizes the condition may, perhaps, be accounted for by the diminution of the heat-regulating function of the skin, owing to an abnormal state of the surface capillaries. Another interesting point is the malar flush common in myxœdematous patients, in whom it stands out in marked contrast to the general waxiness of the skin. This may well be a stasis resulting from pressure on deep cutaneous veins.

A preliminary note as to the congenital high forehead and its accompanying temperament was published in the *Lancet*.* A word may now be added as to subsequent work. At the Cuckoo Schools I was kindly helped by Dr. E. S. Litteljohn, the medical superintendent ; by his son ; and by Dr. Lionel Tayler. The standards adopted as to the congenital high forehead and other signs and symptoms naturally varied somewhat according to the individual observer. Unfortunately, notes are available in 131 cases only, but the rest of the children showed much the same proportion of associated conditions.

* "Frontal Band Alopecia as a Sign of Exophthalmic Goitre and Associated Conditions," *Lancet*, October 19, 1907, p. 1080.

In 131 boys and girls of an age averaging seven to fourteen years were found—

Congenital high forehead	113
Abnormal thyroid gland	55
Nervousness (marked)	42
Chilblains	55
Epistaxis	28
Tremors	25
Tachycardia	36

It will be noted that a large proportion show the congenital high forehead. In later life a certain number develop a band of hair which brings the growth to the limit of the ordinary forehead ; that is to say, it would no longer be called " high." This later growth may be often seen pencilled out on the forehead. The fact of the frequent non-appearance of the hair in childhood in that region, and its appearance at a later age, suggests that the high forehead may be part of a gradual reduction of the hairy region of the face, possibly connected with the increasing height of the forehead in man. The point is perhaps worth noting, that the gradual growth in bulk of the frontal region widens the cutaneous area to be supplied by the arteries of the brow and frontal part of the scalp, with presumably some associated lowering of nutrition. At any rate, it is extremely difficult to explain why a band of baldness should often appear across the forehead and around the margin of the hairy scalp.

The practical point suggested is that the congenital high forehead is in many or in most cases connected with a peculiar temperament, in which the person affected is subject to the development of exophthalmic goitre, myxœdema (the two sometimes associated), with various vascular and nervous symptoms, such as epistaxis, chilblains, nervousness, tremors, headache, and tachycardia. The development of these associated conditions is largely influenced by shock of various kinds, and by the general nutrition of the patient.

The congenital high forehead and the frontal band, alopecea areata, in relation to exophthalmic goitre and myxœdema, are illustrated in the following cases:

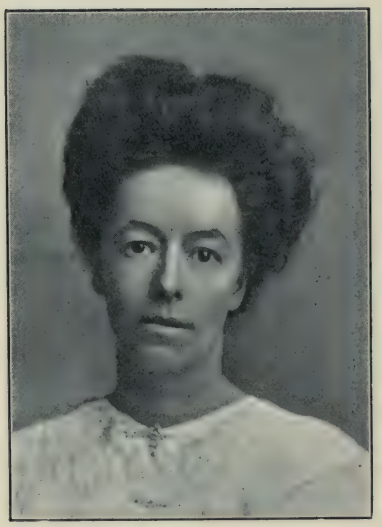

FIG. 25.—CONGENITAL HIGH FOREHEAD AND EXOPHTHALMIC GOITRE.

E. G., female, aged thirty-three years, single, swimming-bath attendant. Suffering from exophthalmic goitre; moderate exophthalmos; enlarged thyroid gland; fine tremors in hands; nervousness; pulse 100; depression; palpitation; tinnitus; mild Raynaud's disease. Congenital high forehead, frontal band area partially covered with short hair. Symptoms came on some years ago after shock (discovered that her reputed husband was already a married man).

FIG. 26.—CONGENITAL HIGH FOREHEAD AND EXOPHTHALMIC GOITRE.

M. F., aged forty-four, female. Exophthalmic goitre; isthmus enlarged, and lobes (especially on right); exophthalmos; von Graefe's and Stelwag's signs; pulse 108; epistaxis; headaches; depression; chilblains; nervousness. The forehead has always been high, and there is a well-defined frontal band baldness. Patient suffers from valvular disease (mitral regurgitation). The illness dated from a shock three years previously when a child was brought home unconscious.

FIG. 27.—FRONTAL BAND ALOPECIA.

E. L., milliner, aged forty-nine, single. Has mild exophthalmic goitre and mild myxœdema at same time; some exophthalmos and Stelwag's sign. Came complaining of nervousness. Pulse 108; fine tremors of hands; lips stiff; voice slow and memory bad; shows hair changes—hair coarse and white, especially along frontal and temporal margins; hands puffy. Thyroid gland increased in size; transverse creases front of neck; occasional loss of voice. Forehead always high; the average normal height indicated by thin partial line of hairs pencilled on skin about an inch below existing border of scalp; eyebrows raised. Ten years ago shock from suicide of lover. Lost place as sales-woman, and could not get another situation. Was told by one employer that "she spoke in so tired a voice." Complete recovery under thyroid gland and galvanization (5 to 10 m.a.): poles applied to back of neck and suprasternal notch.

2. Rheumatism.

Rheumatism is connected with certain rashes, more frequently in children. The commonest rashes are urticaria, multiform exudative erythema, and erythema nodosum (in young adults). Peliosis rheumatica and Henoch's purpura are also manifestations of this disease. Schloss has reported a series of cases in which there were cardiac lesions.*

3. Diphtheria of the Skin.

It has long been known that diphtheria attacked wounds of the skin, usually with the formation of a characteristic whitish membrane. Recently it has been shown that various acute pustular affections of the skin, of impetiginous and ecthymatous type, were due to infection by the bacillus of Löffler. The patients are as a rule acutely ill, and the attack may be followed by various palsies of a more or less severe nature. Pathologically the specific pathogenic *Bacillus diphtheriæ* is found associated with staphylococci. Unless the severity of the attack leads to a bacteriological investigation, it is usually regarded as a coccic invasion. Treatment consists in the prompt injection of antitoxin, which is just as efficient a remedy in this form of diphtheria as in that of mucous membranes.

Among other diseases, **Diabetes** is associated with various erythematous and papular eruptions, and often (like jaundice) with severe pruritus. **Chronic Bright's Disease** shows various skin lesions, as do quite a number of other general intoxications and constitutional maladies.

* "Rheumatic Rashes," E. H. Cockayne, M.D., Archives of Middlesex Hospital, Clinical Series, No. XI., p. 33.

APPENDIX*

THE WASSERMANN TEST.

Antigen.—Any foreign substance entering the tissues, be it microbe, toxin, chemical substances, or alien cell from another animal—*e.g.*, red-blood cell, renal cell, spermatozoon, etc.—and giving rise to a defensive reaction therein, is known as an antigen, because it leads to the generation of special agents of defence—the antibodies.

Antibody.—The antibody consists of two parts, one of which is thermolabile (= destroyed by a temperature of 55° C.), and is known as the "alexin" or "complement"; the other (which is the antibody proper) is thermostabile (= resists a temperature of 75° C.), and is known as the "sensitizer" or "immune body" (also as the "amboceptor").

The alexin, or complement, is naturally and always present in the blood and lymph of every individual, healthy or diseased; on the other hand, the sensitizer or immune body is not naturally present, being *only produced during the process of immunization*. It is specific—*i.e.*, for every antigen there is a corresponding special sensitizer, generated for the particular occasion.

The alexin is called the "complement" because it completes the action of the sensitizer; *one is powerless without the other*. In the following remarks the term "complement" will be employed instead of "alexin."

Let A = antigen, S = sensitizer, C = complement, then—

$$A + S + C = \text{lysis}.$$

The production and action of the antibody is well illustrated in the following experiment:

* Taken by permission from Dr. Harry Campbell's "Aids to Pathology," 2nd ed., pp. 33-41.

Wassermann's Reaction (the Fixation Test, or Deviation of the Complement).

Antigen — *Tube* 1.—Take a piece of the liver of a syphilitic fœtus (this swarms with Treponemes). Pound and mix with sterilized water, and place in Tube 1.

Complement + sensitizer, or complement alone — *Tube* 2.—Into this place some serum from a patient supposed to be syphilitic. If syphilis is present, then the serum will contain both the ordinary complement and the specific sensitizer peculiar to syphilis. *Per contra*, in the absence of syphilis, only complement is present.

Sensitizer — *Tube* 3.—Into this tube place some guinea-pig's serum sensitized against rabbit's blood. (The guinea-pig is inoculated several times with the defibrinated red corpuscles of the rabbit. Hæmolysis takes place.) This serum contains both sensitizer and complement. By heating to 55° C. the complement is removed and the sensitizer remains.

No complement or sensitizer — *Tube* 4.—Into this tube place washed defibrinated corpuscles of rabbit's blood.

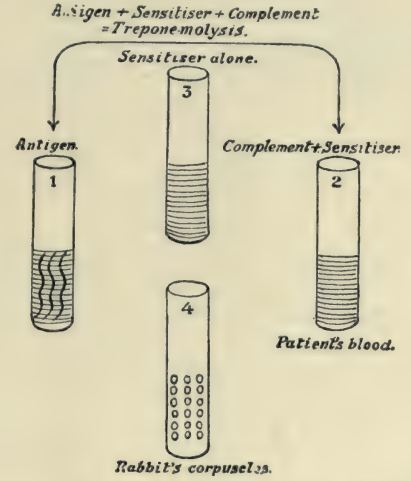

FIG. 28.—FIXATION OF THE COMPLEMENT: TREPONEMOLYSIS.

The complement and sensitizer in Tube 2 attack the antigen in Tube 1, and cause treponemolysis. The complement now being "fixed," there is no hæmolysis in Tube 4, because the sensitizer in Tube 3 is powerless to act alone.

Mix contents of 1 and 2, then add contents of 3 and 4, and place in an incubator for two hours.

If the rabbit's corpuscles in 4 *remain intact* (*i.e.*, if there is no hæmolysis), *the patient is syphilitic*, the reason being that the antigen in Tube 1 and the sensitizer in Tube 2 have united with the complement (also in Tube 2) before the addition of the sensitizer in Tube 3. No hæmolysis can take place in Tube 4 *because the complement has been fixed*, and the sensitizer is powerless to act alone.

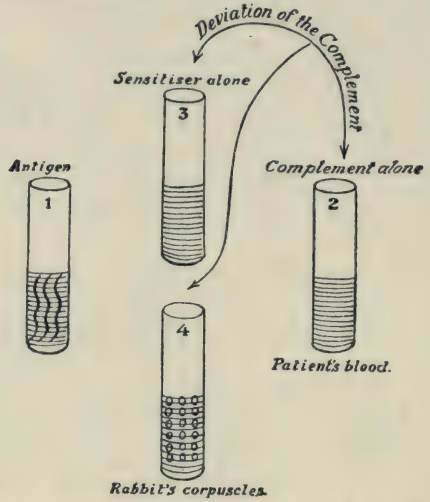

FIG. 29.—DEVIATION OF THE COMPLEMENT: HÆMOLYSIS.

The patient is non-syphilitic. The complement which is naturally present in his blood (Tube 2) is left free, and is deviated to the sensitizer in Tube 3, so that complement in Tube 2+sensitizer in Tube 3=complete antibody. The complete antibody now attacks the rabbit's corpuscles in Tube 4, causing hæmolysis, hence turbidity of fluid (the rabbit's corpuscles have lines drawn through them to indicate the hæmolysis).

In the next case, assume the patient is non-syphilitic. Mix the contents of the tubes as before, and place in an incubator for two hours.

The liquid becomes red and turbid from hæmolysis, the reason being that, the patient not having syphilis, his blood contains no sensitizer, but it nevertheless contains complement (which is common to all bloods). The complement, accordingly, in Tube 2 is free to act in conjunction with the

sensitizer contained in Tube 3, hence hæmolysis in Tube 4. In this case, then, the sensitizer has caused the complement to " deviate," while in the former case there is " fixation " of the complement. For these reasons the reaction is called the *deviation of the complement*, or the *fixation test*.

The Wassermann reaction is found in about 90 per cent. of cases of primary and secondary syphilis, and in the majority of cases of tertiary syphilis. It can be obtained with the cerebro-spinal fluid in about 90 per cent. of cases of general paralysis of the insane, and in about 75 per cent. of cases of tabes dorsalis.

As the result of recent researches, it has been found that an extract of normal liver (and other tissues) can be used in place of the syphilitic liver in the preparation of the antigen. This is supposed to be due to the presence in the liver of lipoids. According to Levaditi, the substances in the blood and cerebro-spinal fluid occurring in syphilis are not antibodies, but lipoids, liberated when certain tissues break down. Although this may give a new interpretation to the Wassermann reaction, it in no way militates against the value of the test in the diagnosis of syphilis. Moreover, *mutatis mutandis*, the experiment as above described may be taken in principle to represent the reactions between antigen and antibodies in the production of lysis.

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